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ADEQUATE MEDICAL SERVICE OF THE FUTURE*

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CINCINNATI

In the strikingly evolutionary programs of the twentieth century, no group of individuals is about to have its old-time relationships more radically changed than the group of physicians. Many factors, social and economic, will be responsible. Some of these most evolutionary changes will promptly and voluntarily come from within the profession; others will be forced on the profession. It is evident that we have for all time passed beyond the stage of the absolutely individual and personal relationship of family physician and patient, to one in which the community steps in to safeguard itself against any abuse of this circumscribed relationship, and demands collective action in matters of health for the benefit of all.

SOCIAL AND ECONOMIC PROBLEMS

The concentration of population in cities has developed problems beyond the control of the private physician. In the trail of density of population have come the tenement, sweat-shop, bad housing and living conditions, tuberculosis, alcoholism, venereal disease, poverty, delinquency and crime. The development of industry with its occupational hazards has created another series of health impairments which the family physician may have the knowledge to alleviate, but the prevention of which is entirely beyond his control. The establishment of the public health department was a partial answer to these new social requirements.

The coming of industrial concentration presented other social disorders. We have witnessed the development of class feeling and the estrangement between labor and capital. Strikes and lockouts were only a consequence. The valued relationship of master and man passed out. They no longer had real personality for each other, no longer worked side by side, they lived further apart, thus making the difference in their scale of living more evident. The gulf between poverty and riches was widened. Unemployment, seasonal employment, the physically unfit, the unemploy- [illegible] industrial hobo, the labor turnover, all huge size as medical and social problems of such Society to spell defeat of their solution.

are largely realizing that the problems of industry the communit problems; that the major portion of is engaged in industry and that when badly administered, it is therefore a menace to the peace, health and happiness of the whole community. When properly administered, it is of inestimable value socially and economically. Whatever industry does, because of its size, is impressive.

Has the medical profession kept pace with society in its realization for the necessity of community thinking, community action? Has the profession recognized that its work is fundamental to the solution of every social problem thus far presented? Are we thinking in terms of the mass, and adjusting our work to the new social needs? Have we fully realized our obligations, our opportunities? Do we actually sense the full meaning of the fact that every social disorder has a medical aspect? Do we really appreciate that most social misfortunes are founded in the neglect of the laws that make for a healthy mental and physical state, and that it is our bounden duty to apply ourselves to these tasks? Do we understand that these social disorders call for a new medical order? To the extent that we do understand, we shall be either producers of social reform or merely its by-products. Ours is the choice.

It was with these thoughts in mind that your officers deviated from the usual style of program for the Section on Preventive Medicine and Public Health, and have endeavored to encourage an extended discussion of the social and economic status of the practice of medicine. In thus drawing your attention away from the discussion of detail of administration, away from the refinements of the application of scientific and hygienic measures, I hope to visualize a broad concept of the potentiality of the socially minded physician in private practice, in public health practice, and especially in industrial practice. I am trusting that the discussion may point the way toward a more adequate practice of medicine, the medicine of tomorrow.

Ours is no effort by legislation to thrust revolutionary methods on the members of our profession. It is rather to set out in bold relief some of the rational and evolutionary processes that are taking place, and may yet take place, within the profession; to measure, if possible, their relative social values, and to deduce from this study the direction in which medicine must go to meet the new social order, to produce adequate medical service. I shall confine this discussion to the consideration of three of these well defined tendencies:

1. Higher standards of private practice by refinement in diagnosis and treatment through group practice.
2. Higher standards of public health practice (emphasizing school dispensaries).
3. The development of industrial medicine — the new specialty.

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* Chairman's add read before the Section on Preventive Medicine and Public Hea at the Sixty-Eighth Annual Session of the American Medical Ass ion, New York, June, 1917.

Scientific attainment will come through the emphasis of the first. The application of this science to the ultimate social good will proceed largely through the latter two. All three together, through years of patient effort, will make for that final goal, adequate medical service.

In contrast to the stated need for years of evolutionary growth, the adequate medical service is being heralded as possible of accomplishment over night, by the mere process of legislative action, changing the method of compensating the physician through a central collecting agency. Some of us are ready to affirm that there is an actual shortage of adequate medical service both quantitatively and qualitatively, and that, therefore, no kind of legislation can make it purchasable by all or for all; that the chief social need is for the development of some organized plan of reform within the profession that will eventually produce and make procurable adequate medical service.

We are deeply indebted to the proponents of social insurance for setting forth the direct relationship between poverty and disease, for emphasizing the economic advantage to society of grappling vigorously with the problem of disease, and for pointing out the shortcomings and the inadequacy of present medical service. The argumentation has crystallized recognition of the immense contribution that scientific preventive medicine should make to the nation's better health. But, in their unfortunate haste to legislate, and in their intolerance of further discussion, they have not taken time to write into their instrument the fundamentals that attack disease and thereby prevent poverty.

It is not my purpose to decry compulsory sickness insurance, but to present a partial program for the socialization of medicine which will be worth while for itself, but which incidentally must finally become the foundation of any rational health insurance plan against which will be found but few opponents.

As the proposed health insurance bill revolutionizes the relationships of the physician, we are by that act immediately threatened with a new future for the practice of medicine. Is it not timely, therefore, that the medical profession should decide what that future shall be?

The subject of adequate medical service is of vital interest to the wage earner, the political economist, the physician, the employer and the public. Ours is an effort through group practice or a symposium discussion to diagnose our social miseries, and then to write a prescription. It is fair to assume that if a program can be devised that will meet the needs of the individual, it can probably be extended advantageously to meet the needs of the community.

What are the individual's social needs?

1. Health, so that he may work effectively and thereby earn a good wage.
2. Employment in an industry free from health and accident hazards.
3. A healthful home accessible to his work.
4. Intelligent medical care in time of illness.
5. Protection to his home and industry.
6. Good schools for his children which safeguard the health.
7. A health department which will protect his family against contagious diseases, and safeguard his food supplies.
8. Healthful recreation for himself and family.

It will be seen at a glance that his success and happiness are predicated on his health and that of his family; that this health is possible only through collective action, and that the family physician appears only when some health agency has failed to prevent disease.

For the reason that most physicians are still individualists and have failed to recognize that health is no longer a personal matter, a discussion of the necessary changes in the practice of medicine is timely.

A conviction has been born out of considerable observation and experience in philanthropic and social work that physicians do not comprehend their direct relation to sociology. The physician should be the leader in community thought in all problems of disease, insanity, crime, delinquency and dependency. To do so, however, he must have a wide angled vision of social disorders.

If disease is so costly, what definite and practical means are now at hand to reduce that loss? How far can we prevent disease? To those who have given only cursory thought to this subject, the annual loss of $500,000,000 charged to illness seems impressive. But let us consider what the great economic and social wastes are that make for sickness and poverty. Let us see whether these wastes are preventable, and if so, should not society rather give its attention to this worthwhile program which, in accomplishment, will be striking at the roots of the evils which to many appear momentarily to justify the medical and social revolution involved in compulsory sickness insurance?

Tuberculosis, it is said, claims an annual economic loss in this country of nearly $500,000,000. Bad housing, bad living, alcoholism, venereal disease, and occupational diseases would surely add an equal number of millions. The excessive annual labor turnover, or the quick hiring and firing of help is responsible for another $500,000,000. Voluntary absence from work due to personal reasons or lack of application causes an annual loss of more than $500,000,000.

Now these social and economic losses, totaling billions, are all preventable if society is really in earnest about improving its fundamental conditions and those of the medical profession. Remove these drains on the wage earner's health and purse, and he will need none of the proffered aid from the state in the guise of compulsory sickness insurance.

We can form some estimate, for instance, of the cost of alcohol and venereal disease to society, if we take the sum total of the cost of prison administration, maintenance of almshouses, institutions for the insane and feebleminded, the cost of caring for delinquent and dependent children, the blind, and the cost of the erection of hospitals, and particularly the care of sickness due to the factors of alcohol and venereal disease.

Alcohol is charged with an increased mortality of
from 25 to 75 per cent. in its users. The morbidity
must follow about the same curve. Will the proposed
model health insurance bill reduce alcoholism [illegible]
venereal disease by one iota? On the o[illegible] towha[illegible]
would not some constructive program lo[illegible] the [illegible]
the reduction of these enormous burde[illegible]iately re[illegible]
munity be the most logical way of imm[illegible] purchasing
ing poverty and thereby furnishing the long last-
power for medical service? Consider the mere pay-
ing financial drain of tuberculosis, take the slightest
ment of two thirds of the wages, from the white
dent in the fearful economic l[illegible] controlled only by
plague? This disease can be fin-

early diagnosis. The early diagnosis and cure of tuberculosis can come only through higher standards of medical practice, medical supervision, physical examinations and reexaminations, through better housing conditions and sanitary measures, and through the reduction of alcoholism and venereal disease on which this plague is so largely engrafted.

SOCIAL IMPROVEMENT THROUGH MEDICAL IMPROVEMENT

What plan for social improvement is worth our time, our discussion, our money? If we, as physicians, would be successful in the improvement of the health and happiness of the nation, we must at the outset reorganize both private health practice and public health practice. Both must be placed on a higher plane of efficiency. Next, we must set up adequate public health machinery by reorganizing the federal, state and municipal health work. This work must be entirely removed from political control, so that scientific attainment and spirit may pervade the whole organization, and then we may have the maximum of coordination and cooperation throughout this machinery for the attainment of 100 per cent. efficiency in working for public health. The proposed health insurance bill affects but 30 per cent. of the population (industrial workers). Any plan for health betterment should include 100 per cent. of the population. Good health pays. It should be demanded of the rich as well as the poor. We can well afford to extend our health department facilities so that we may know about the living and health conditions of all of the people.

How can this best be accomplished and by what agencies?

1. We must provide the private practitioner with the opportunity of higher standards of practice.
2. We must raise the standards of public health practice.
3. We should encourage the extension of industrial medicine.

These three factors will produce better health, lessen disease, and increase the number of working days, as well as working capacity, thereby reducing poverty and at the same time increasing the purchasing power for better standards of living, including the purchasing capacity of adequate medical service.

HIGHER STANDARDS OF PRIVATE PRACTICE THROUGH DIAGNOSTIC CLINICS

What share of the $500,000,000 loss which is charged to illness is due to unnecessary length of illness on account of lack of diagnosis, faulty diagnosis or faulty therapeutics? Loss from illness can be tremendously reduced through the establishment of diagnostic clinics so that 100 per cent. of the people may enjoy the advantage of the most scientific medical and surgical knowledge obtainable. These diagnostic clinical stations would afford to all physicians in their daily work the same facilities as extension courses and postgraduate work. It is difficult to imagine a better method of raising the standards of medical practice.

The group plan of practice, the furnishing of diagnosis, should be made free, or supplied at a minimum cost, so that 100 per cent. of the profession may keep in daily contact with the progress of scientific medicine by taking their patients to consulting clinics. Today in large cities 20 per cent. of the profession only have access to the scientific equipment of hospitals and public diagnostic research laboratories, and the 20 per cent. have these advantages at the cost of the 80 per cent. of the public and the 80 per cent. of the profession. By making diagnostic clinics free, or practically so, we shall enormously stimulate accurate diagnosis, systematic treatment, and preventive health work. These diagnostic clinics should be under the control of the health department. Health departments today make Widal tests, sputum examinations, Wassermann tests, diphtheria cultures, and send their men to confirm diagnoses of contagious diseases. The extension of this work to more complete diagnosis should not be objectionable.

Hospitals should primarily be teaching centers for all the physicians of the community as well as for medical students. Too often public and semipublic hospitals serve the selfish purposes of a fortunate few who, while claiming altruistic motives, deny to the profession at large, and therefore to the public, the educational advantages of hospital and clinical facilities. Specialism is all too rampant, and forbids the general practitioner a place in the sun.

THE SCHOOL DISPENSARY

The tremendous reduction in loss from illness occurring through the operation of industrial dispensaries suggests the extension of this principle to the schools. If full time physicians were placed in charge of all-day dispensaries in schools, making physical examinations of all children, and prescribing for their minor ailments, using the public diagnostic clinics previously referred to for confirmation of diagnoses, a similar reduction would take place in lost time from school as has taken place in lost time from work through the operation of all-day industrial dispensaries. Many universities have already instituted such medical supervision and care of the students. Industrial workers and schoolchildren comprise, perhaps, more than 80 per cent. of our population that would thus be reached by intensive preventive work and treatments in the daily clinics. The school dispensary in reaching out and supervising the child of preschool age, now utterly neglected, will serve a great social purpose.

THE IMPORTANCE TO PUBLIC HEALTH OF THE INDUSTRIAL DISPENSARY

If war has proved anything, it is that military success is dependent on industrial efficiency of the country. The health of the industrial units has loomed up as of paramount importance. We are equally concerned with the health of the individuals in these units in peace times, since they form the major portion of the community.

Perhaps the greatest change that has come in medical practice has been the development of the field of industrial hygiene. It is now taking the whole time of thousands of physicians in the medical supervision and care of employees, and it would seem that the beginning has just been made. No doubt this situation has been stimulated by workmen's compensation acts, but it is equally due to the awakening social consciousness on the part of the manufacturer. He has learned that the health of the worker is a definite asset in his business. Medical care in industry is not a charity. It pays good dividends. With the discussion for social insurance, we may look for a still greater extension of this work, and a more general employment of physicians in industry. The caring for occupational diseases, under workmen's compensation com-

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In contrast to the stated [illegible] worker, and pressure for the elimination tionary growth [illegible] hazards. At the same time, the wage of heralded [illegible] worker is raised because such care increases his capacity for work and therefore still further reduces the necessity for charity in one form or another. It adds a new arm to the health department, and makes possible preventive medicine such as we have never yet dreamed of.

It does not take much imagination, therefore, to foresee the time when practically all of the industrial workers will be under daily supervision through industrial dispensaries. For the first time, then, we can begin to collect accurate data on morbidity. The very limited registration reflects the backward state of scientific preventive medicine. Absence from work is an economic question, and industry is going to know the reason why a man is off from work, and from what illness he is suffering. The employer is going to concern himself to the end that the employee's medical attention is of good quality. He will be interested in his food as well as in his housing problems. As to the claimed loss of nine days per year per man, or 0,000,000 on account of illness, private initiative, ugh the industrial dispensary, has shown that this can be reduced by one-half without charge on one but the employer, and this money is gladly spent because it is economically sound to do so.

Now the questions arise, What relationship will this new industrial medicine bear to public health work? Should it not have some kind of supervision from the health department so that its work may be best coordinated? And lastly, Would not industry cooperate in making industrial hygiene compulsory?

This type of socialized medicine will be intensively preventive, and entirely democratic; it will discover disease in its incipiency; it will prevent loss from illness instead of merely paying, through compulsory sickness insurance, a certain fraction of that loss; it will attack directly such problems as bad housing, venereal diseases, alcoholism and tuberculosis, and thereby make a fundamental contribution to social welfare. In comparison, the proposed sickness insurance bill is merely palliative, and actually tends to cover over and hide the various "social ulcers."

If we were to socialize medicine to the extent suggested, we would improve that time-honored and most desirable relationship between the family physician and patient. This immediate and definite response to social need would avoid the lowering of standards that is likely to come with the introduction of the panelized physician. Unless compulsory sickness insurance can be so devised as to place chief emphasis on prevention of disease rather than the giving of financial relief, it will actually jeopardize present health work by further reducing the present inadequate budgets. Through the socialization of medicine, the raising of the standards of medical practice, along with the extension of preventive work, illness to the industrial worker and to the rest of the public might well be reduced by one half. It would then follow that the distribution of the loss from nonpreventable diseases could more rationally be undertaken by some insurance plan.

It will be seen at a glance that his success and happiness are predicated on his health and that of his family; that this health is possible only through collective action, and that the family physician appears only who recognizes the close interrelationship between social work and medical work. These must be coordinately developed.

Let us now begin within the profession "a clean up and brush up campaign." Let us "put our own house in order." Let us be certain that we have given close attention to the social needs of the community. We may stand erect in the knowledge that we have always given unstintingly of our energy to make the world better for our living. If we are fully awake to our social obligations and opportunities, we need not commit the error of permitting well meaning reformers to mobilize our forces. It is our business to formulate social programs, not ours to accept, unchallenged, programs which place uneconomic burdens on us. Who are better equipped to write a social prescription than the members of the medical profession? Before making any additional sacrifices, we want to be "dead certain" that the other social groups are doing their part, and that the sacrifice is justified. If society at large will do her share in correcting her own evils, the medical profession can be counted on as always to cooperate and to do more than its share.

CONCLUSIONS

1. Private health practice and public health practice must be improved.
2. The knowledge of the prevention of disease, its diagnosis, and cure must be advanced.
3. Higher personal and ethical standards must prevail.
4. This better day will be hastened by a more general adoption of the group practice plan.
5. More men must fit themselves for the distinct specialty of industrial medicine.
6. The supervision of schoolchildren and children of preschool age should be extended through the establishment of school dispensaries.
7. These methods together will constitute an adequate medical service, and be a forward step in the ultimate socialization of medicine.

ABSTRACT OF DISCUSSION

Mr. Lee K. Frankel, New York: The fundamental error that has been made in the dicussion of this subject is due to lack of realization as to what insurance means. Primarily, insurance has no thought of prevention. The advocates of social insurance have said much about the proposed compulsory insurance bill carrying with it prevention of sickness. If we will only realize that, fundamentally, insurance is not prevention, but that it is indemnity for loss, we may get together on a basis for legislation satisfactory to all. Health insurance, basically, is intended to replace wages which individuals lose by illness. This is a comparatively simple matter: it means the preparation of a morbidity table in order to determine the cost. So far as this payment of claims is concerned, insurance involves the medical profession; but it involves it only in so far as the skill of the medical practitioner is required to determine whether the individual who claims benefit is or is not entitled to benefit.

Where the confusion has arisen, not only here, but abroad as well, is in the fact that the medical practitioner has been expected to perform this one primary and important function, but, in addition thereto, to give medical treatment and care. When you realize that medical men have deliberately banded themselves together, have gone on so-called strikes, and have refused to give treatment, in absolute opposition to the ethics of the profession, you can realize what social health insurance in Germany has developed. If there is one thing we want to avoid, it is the repetition of that in the United States. The question of medical care, the question of treatment, is a thing apart from the payment of cash benefits. Whether we shall get away from the theory of the individual medical practitioner, with his fee, and have salaried medical practitioners, cannot be determined by the outsider; it must be determined by the profession itself; and until the profession has given careful consideration to this matter, has come to some agreement, we cannot develop any efficient and thorough scheme of sickness insurance in the United States.

Dr. Joseph Goldberger, Washington, D. C.: In my judgment there is no matter that is likely to be such a powerful incentive for the exercise and practice of preventive medicine as health insurance. As an illustration of the principle involved, I want to cite the parallel phenomenon that we are seeing at the present time in connection with preventive medicine in a field related to health insurance, namely, life insurance.

Now, you all, I think, know the splendid work that the Metropolitan Life Insurance Company, for instance, is doing toward the conservation of health and the prevention of death, simply because it finds that it is a matter of dollars and cents; that it is a matter of economy to prevent death. Now, it seems to me that when we have some system of health insurance, then the prevention of sickness will become a profitable business to the organization insuring against sickness. When it comes to the question of organization and administration, that is a matter about which I have no opinions. The point, however, that I wish to emphasize, and that I think is of fundamental importance, is the one that I have just mentioned: that health insurance makes the conservation of health and the prevention of sickness a matter of dollars and cents, a most potent and driving force.

Dr. Otto P. Geier, Cincinnati: May I insert a comment on Dr. Goldberger's statement as to the likelihood of economic pressure bringing about preventive work? If he will go to Ohio and study the workmen's compensation law and see the ever-increasing cost per $100 of insurance in the various industries, and note how relatively indifferent the manufacturer is to that increasing cost, he will take a different view as to the rapidity with which people will respond to preventive work under social insurance because of economic pressure. What actually happened was that industry opposed the workmen's compensation act. Once adopted, the industries accepted the situation and the rate per $100 of pay roll for each class of industry. When the rate went up 5 cents, 10 cents, 15 cents, 20 cents per $100, little or no attention was paid to it. Industry had acquired an immunity against any economic reaction. The fact remains that industry is not trying to reduce accident through a desire to reduce the rate. The real reason for industry's interest in reducing accidents is a realization that the man's absence is expensive because of the lowering of production, and because by reducing accidents industry also reduces the expensive labor turnover.

Detecting Adulteration in Tea.—A new method of detecting adulteration in tea has been described by L. Rehfous in the *Bulletin* of the Botanical Society of Geneva (Switzerland). It involves an examination of the stomata, which are quite different in *Thea sinensis* from those of the leaves used for adulteration. In *Thea* the guard-cells of the stomata possess, on their inner surface, a very strongly marked layer of cutin, which is prolonged into a beak or hook, and which is distinct from the beak which closes the ostiole. Mr. Rehfous finds these features, with minor variations, in all of numerous kinds of tea examined, and they appear even in the sepals of the tea plant. The only leaf used for adulteration that bears much resemblance to *Thea sinensis* is the leaf of Camellia (also a species of *Thea*), but a transverse section of the latter shows that the hooks of the stomata are very slightly developed.—*Scientific American.*

A CRITIQUE OF BANTI'S DISEASE*

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INTRODUCTION

The disease described by Banti has received fair attention from writers on clinical medicine, but curiously, very little from pathologic anatomists, and rarely from both. As a consequence, the literature on Banti's disease affords a most disjointed impression, and leaves little material on which to base an estimate of the validity of Banti's disease as a nosologic entity. Indeed, in order to form a clear idea as to what Banti's disease is, it is necessary to turn to the articles written by Banti himself. Then we find that one of two things has happened. Either the observer has not taken sufficient pains to find out Banti's own specifications, or he has frankly committed himself to Banti's views, without the slightest, or only faint-hearted, attempts at criticism. Practically the only criticism of Banti's views has come from pathologists and, significantly enough, the general tone of it is one of guarded skepticism. We therefore meet with the strange phenomenon of a disease being almost whole heartedly accepted by clinicians, and only negatively, so to speak, by pathologists. As an attempt at reconciliation of these two views various modifications of Banti's conceptions have been proposed, which have resulted only in making "confusion worse confounded," so that nobody, not even Banti himself, as I shall show, knows definitely what Banti's disease connotes.

It seems necessary, therefore, to resurvey our ground and subject the vast data that have been gathered to a comprehensive critique, in the light of both clinical medicine and pathologic anatomy.

REPORT OF CASES

This study was instigated by the report of the following two cases:

Case 1 (Beth Israel Hospital Pathologic Report 4467).—*History.*—M. W., a man, aged 60, married, admitted July 25, 1913, for one year had complained of general weakness, which slowly increased. For the last half year, he noticed a yellow tint of the skin. He had gone to bed five weeks previously with swelling of the ankles and feet. At times he had slight vertigo. There were urinary, respiratory or digestive symptoms.

Physical Examination.—The patient was emaciated and had edema of the ankles and the eyes. There was evidence of profound anemia, and the skin had a yellow tinge. There were signs of a chronic tuberculosis of both lungs. The left heart was dilated, with a rough systolic murmur in the pulmonic region. The liver was palpable 3 inches below the costal margin. The spleen extended from the seventh intercostal space to the level of the umbilicus; its edge was irregular; it was soft in the upper and hard in the lower portion. The abdomen contained fluid. The blood count on admission revealed 2,850,000 erythrocytes. These were progressively reduced until two days before death, when they were 1,200,000. The leukocytes were 7,000 on admission, and varied around this number throughout the patient's illness. The hemoglobin was 35 per cent. at the outset; a day or two before death it was 10 to 14 per cent. There was evidence of anisocytosis and poikilocytosis, and occasional microblasts were present. The temperature varied between 98 and 100 F. The pulse was not rapid. A test meal revealed blood in the gastric contents. The clinical diagnosis was Banti's disease. The patient died, Dec. 8, 1913.

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*From the Pathological Laboratory of the Beth Israel Hospital.

* Read before the Section on Pathology and Physiology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Anatomic Diagnosis.—Necropsy revealed emphysema and healed tuberculosis of both lungs, chronic pleurisy with adhesions, hypertrophy and dilatation of left ventricle, atheroma of aorta, thrombotic fibrous angioma of liver, chronic diffuse nephritis and splenomegaly. The spleen measured 24 by 20 by 15 cm. and weighed 1,165 gm. (liquor formaldehydi). It was densely adherent to the costal wall, and the capsule was thick, dense and resembled *Zuckerguss* (sugar-icing) in appearance. In the upper part of the convex surface was a shallow depression in which the capsule was unusually thick. Section through this area revealed a thin plaque of lime. The pulp was firm and elastic. It was a deep reddish-purple, and the surface was smooth. The pulp did not scrape. Connective tissue trabeculae, both large and small, were enormously increased. The larger trabeculae were especially prominent and sprang forward from the cut section. Malpighian corpuscles were not visible.

The liver presented a slightly nutmeg-like appearance. There was no cirrhosis.

Microscopic examination revealed chronic congestion and chronic tuberculosis of the lungs; brown pigmentation of the heart muscle; slight chronic congestion of the liver (no cirrhosis); slight interstitial pancreatitis, and marked chronic diffuse nephritis.

The capsule of the spleen was much thickened, and in places showed areas of hyaline degeneration. The predominant lesion was a profound fibrosis. The new connective tissue was either pure fibrous and surrounded the splenic veins, or was more cellular and then appeared as masses or strands throughout the organ. The pulp was deeply engorged with red blood cells. The pulp cells showed a marked diminution in cellular content. The cells consisted mostly of lymphocytes; many cells were of the plasma type; there were a few large cells of the endothelial type and a few large multinucleated cells. The splenic veins were normal in size. Their lining epithelium was not swollen. The trabeculae were enormous in size. Their blood vessels showed thickening. The malpighian bodies were few in number and very small. A small number showed fibrosis proceeding eccentrically from the central artery. There was no blood pigment. The splenic veins in the pedicle showed enormous thickening of the intima, forming veritable projections into the lumen. The walls showed a profound increase in connective tissue with hyaline degeneration. There were extensive lime deposits in the walls of the veins. The arteries showed slight thickening. Sections of spleen and vessels stained by Levaditi's method showed no spirochetes. The lymphatic glands were normal.

Case 2 (Beth Israel Hospital Pathologic Report 7288).—*History.*—R. K., a woman, married, aged 47, Russian, housewife, admitted, July 15, 1916, never had had children, but had had twelve miscarriages. Her illness dated back twelve years, when she was sick for some months with an attack similar to the present. She had hemorrhages from the mouth and bowels, with swelling of the abdomen and feet. Ten weeks previously she had had a hemorrhage from the mouth and bowels. She also noticed at that time swelling of the abdomen and feet; her appetite was poor; she had occasional nausea but no vomiting; she had precordial pain with palpitation and occasional fainting spells, occasional headaches, and much weakness, and had lost considerably in weight.

Physical Examination.—The patient was pale and emaciated. The spleen extended nearly to the umbilicus; it was hard, rough, irregular and lobulated in outline. There was much fluid in the abdomen. The other organs were negative. The red blood count was 3,460,000; leukocytes, 14,200; hemoglobin, 50 per cent. The differential count gave: polymorphonuclears, 85 per cent.; lymphocytes, 12 per cent.; eosinophils, 3 per cent. The feces were tarry and give a reaction for blood. The temperature and the pulse were normal. The Wassermann reaction was negative.

The abdomen was tapped twice, and each time from 9,000 to 10,000 c.c. of clear fluid were withdrawn.

The clinical diagnosis was Banti's disease. The patient died, Aug. 18, 1916.

Anatomic Diagnosis.—Necropsy revealed brown atrophy of the heart muscle; slight atheroma of mitral and aortic valves; healed tuberculosis of the bronchial lymph nodes; chronic perihepatitis; slight chronic congestion of the liver, but no cirrhosis; chronic diffuse nephritis; chronic peritonitis, and splenomegaly with multiple healed infarcts containing lime and bone.

The spleen measured 25 by 15 by 7.5 cm., and weighed 3,840 gm. The surface was irregular and lobulated, with numerous deep depressions to which, as a rule, the omentum was densely adherent. At its upper part a portion of the spleen about the size of a baseball had been almost completely cut off from the remainder of the organ by a deep fissure. There were numerous other deep depressions due to the scars of healed infarcts. Most of these scars contained lime, and some of them bone. The deep fissure described above contained an unusually large plaque of bone. The capsule was distended, and averaged about 4 mm. in thickness. On section, the parenchyma was brownish red; the pulp soft and elastic; it did not scrape or spring forward from the cut section. The trabeculae were much increased, both in size and in number. The malpighian bodies were not visible. The splenic veins and artery at the hilum were much thickened and calcareous.

Microscopic Examination.—There was brown degeneration, chronic congestion and slight fatty infiltration of the heart muscle. The liver showed no cirrhosis. There was a moderate grade of chronic parenchymatous nephritis. The other organs showed nothing of significance.

The capsule of the spleen showed thickening and hyaline degeneration. The predominant aspect was that of a profound fibrosis. The organ appeared like a huge angioma, the splenic veins being round or spindle-shaped and were surrounded by dense masses of splenic pulp which had undergone almost complete fibrous change. Much of this new fibrous tissue was hyaline in character. The pulp contained comparatively few cells. These were mostly of the lymphoid and plasma type, with a few large endothelial cells. The endothelium of the splenic veins was not swollen. The malpighian bodies were almost completely absent; here and there was a small group of irregularly arranged lymphoid cells which represented the remains of the malpighian bodies. The trabeculae were enormously increased in size, and their containing vessel showed thickening of the walls with hyaline degeneration. The infarcts showed an almost complete transformation into hyaline connective tissue; nearly all contained lime and some contained bone. There was no blood pigment in the spleen.

The splenic vessels at the hilum showed a connective tissue infiltration so profound that little muscular tissue was left in the walls, and the normal structure was almost completely obliterated. This new connective tissue also showed hyaline degeneration. There was much deposition of lime in the outer coats of the vessels. Sections of spleen and vessels stained by the Levaditi method showed no spirochetes. The lymphatic glands were normal.

COMMENT

Reviewing the clinical features of these two cases we find the following:

The first case was that of a man, aged 60, who had been suffering for one year from a rather profound anemia which progressively increased. During his stay in the hospital, there had been a pronounced splenomegaly, a moderate ascites, and, as the necropsy revealed, a healed tuberculosis of both lungs. In addition the patient had presented a blood condition corresponding to that of a secondary anemia. Despite the short history and an absence of a relative lymphocytosis, the diagnosis of "Banti's disease," had seemed the only one possible and had accordingly been made.

The second case was that of a woman, aged 46, who had been ill for twelve years, and had given a history of hemorrhages from the mouth and bowels. Very significant had been the history of twelve miscarriages. There had been splenomegaly, a secondary anemia, and an enormous ascites which required tapping. The Wassermann reaction had been negative. In this case all the evidence, both clinical and physical, had seemed typical of Banti's disease.

Reviewing the pathologic findings in these two cases we find many things in common: (1) an enormous splenomegaly, each spleen weighing well over 1,000 gm.; (2) a diffuse fibrosis with persistence of the splenic veins and a consequent diminution in cellular content of splenic pulp; (3) a much thickened and partly adherent capsule; (4) a notable diminution in size and number of malpighian follicles, a change in many instances due to progressive fibrosis proceeding from the central artery; (5) a pronounced endophlebitis of the veins in the hilum of the spleen, where there are, in addition, calcareous plaques; (6) thickening and hyaline degeneration of many of the vessels in the trabeculae; (7) absence of general glandular enlargements; and (8) the liver free from cirrhosis.

DEFINITION OF TERMS "SPLENIC ANEMIA" AND "BANTI'S DISEASE"

In accordance with these clinical and pathologic data, what generic pathologic diagnosis is justified? In other words, do the pathologic findings bear out the clinical diagnosis?

In order to answer this question, a brief discussion of certain forms of the nonleukemic splenomegalies is necessary.

In 1866, Gretsel[1] defined a syndrome which Griessinger termed "splenic anemia." The essential features of this disease are (1) primary cryptogenetic splenomegaly; (2) secondary anemia, and (3) chronicity.

In 1894, Banti[2] believed that he isolated a syndrome and pathologic complex from this broad clinical entity. According to Banti this disease has clinically three stages: (1) a period lasting from three to five, but occasionally even twelve years, characterized by a splenomegaly of practically constant size, and an anemia; (2) a short second period characterized by swelling of the liver with diminution of the quantity of urine, and (3) a final period which lasts one or two years, and is characterized by a small liver and ascites. The symptoms in this stage, according to Banti, are identical with those of an ordinary atrophic cirrhosis. The disease invariably ends in death from hemorrhage, or autointoxication from the cirrhosis. The disease is without known etiology. The most common causes of splenomegaly, such as alcohol, malaria and syphilis, play no rôle whatever.

In addition to the symptoms enumerated above, Banti's disease is characterized by hemorrhages from the mouth and the bowel, an icteric skin hue (but no true icterus), and a secondary anemia distinguished by a subnormal leukocyte count with a relative lymphocytosis.

Pathologically, Banti[3] now maintains what he did not assume in his earlier papers, namely, that the disease has a distinct pathology. These manifestations are the following: 1. In the spleen there is a fibrosis of the reticulum, with narrowing of the splenic veins and a thickening of the capsule and of the coarser and finer trabeculae. 2. The main characteristic of the lesion is a fibrosis of many of the malpighian follicles beginning around the central artery of the follicle and proceeding outward. The artery often shows hyaline degeneration. These changes he termed "fibroadenie," because, despite the increase in connective tissue content, the histologic structure of the spleen still retained its glandular appearance. According to Banti, the connective tissue is not of inflammatory origin, because he has never seen anything resembling fibroblastic granulation tissue in these spleens. There is no blood destruction as evidenced by the absence of blood pigments. 3. A cirrhosis of the liver is present differing in no way from that of the Laennec type. 4. In many cases there is an endophlebitis and often a calcification of the splenic veins, extending sometimes to the junction with the portal vein, and even within the portal vein itself. 5. The characteristic red marrow of a secondary anemia is found. 6. Freedom from general grandular enlargement is noted.

In explaining the pathogenesis of the disease, Banti believed that there is a primary splenomegaly due very probably to an infectious agent. The enlargement of the organ produced in turn another toxin which caused a secondary cirrhosis of the liver and the changes in the splenic veins. The anemia is the result partly of the toxemia and partly of the hemorrhages.

Banti's reasons for believing that the splenomegaly is primary are the following: (1) the large size of the spleen at a time when the anemia is not marked; (2) the microscopic lesion seeming to show that the "fibroadenie" antedates the cirrhosis of the liver; (3) the spleen in Banti's disease showing no evidence of *stauung*, a feature characteristic of the spleen in hepatic cirrhosis, and (4) the cures obtained by splenectomy.

In analyzing the clinical and pathologic features of the disease called by his name, we find that Banti has hedged his malady about by so many criteria that it is almost unreasonable to expect any single case to conform to every requirement.

These requirements are clinical and pathologic, and may be classified as follows: 1. The disease must be without known etiology. As soon as a definite cause for the malady is established, the case is no longer regarded as a possible "Banti," but is at once thrown out of court. 2. The blood picture must be typical. 3. There must be three stages, two of which are fairly well defined clinically. 4. The signs of anemia and splenomegaly must precede the cirrhosis.

Pathologically the data which make a diagnosis of Banti's disease possible are the following: (1) a splenomegaly of considerable size; (2) a cirrhosis in the liver of the Laennec type; (3) a histologic fibrosis of the spleen arising without the interposition of fibroblasts; (4) a progressive eccentric fibrosis of the malpighian follicles, and (5) a usual but not constant endophlebitis of the splenic vein.

Banti admits that there is nothing pathognomonic in the pathologic findings. It seems, therefore, that the diagnosis of Banti's disease must be made by a combination of both clinical and pathologic data. In other words, no matter how clear the clinical diagnosis of Banti's disease may be, unless the pathologic findings are those premised by Banti, the disease is not Banti's disease. On the other hand, even if the characteristic pathologic findings are present, unless the history of the case is typical, the diagnosis of Banti's disease must not be made.

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[1] Gretsel: Berl. klin. Wchnschr., 1866, **111**, 212.
[2] Banti: Sperimentale, 1894, **48**, 407.
[3] Banti: Folia haemat., I, 1910, **11**, 1.

As a consequence of this dual interpretation, the confusion in regard to the status of Banti's disease as either a clinical or pathologic entity is truly amazing.

Banti has found a few adherents, but by far a greater number of opponents. I have already stated that, as far as I can judge from a study of the literature, his adherents are usually the clinicians, while the pathologists are nearly all his opponents. In this critique of the opposing views, I shall try: (1) to submit the argument pro and con that Banti's disease is a distinct entity; (2) to discuss the relation of this disease to allied morbid states; (3) to discuss certain curious features relating to the pathology of this disease, and (4) to suggest certain problems arising from this study.

ARGUMENTS FOR AND AGAINST BANTI'S DISEASE AS A DISTINCT ENTITY

At the outset we shall admit that the clinical picture described by Banti is sometimes seen. Every clinician with any experience will vouch for this fact. In other words, there are unquestionably patients who, for no obvious cause, show symptoms of long-standing anemia with splenomegaly, and these patients after a lapse of years develop ascites and die. It is also admitted that at necropsy the lesions described by Banti are found.

On the other hand, the literature teems with varia-ns from this general type. These will be discussed iatim.

1. As to the etiology of Banti's disease, a large number of clinically typical cases have been reported due to syphilis (Marchand,[4] Chiari,[5] Schmidt[6] and Krull[7]). In Schmidt's case, in fact, the disease was cured by salvarsan.

Kartulis[8] reports ten cases of clinically typical Banti's disease, in which plasmodia were found in the spleen. Skubetsky[9] reports a typical Banti's disease (splenomegaly, anemia, ascites and leukopenia) due to tuberculosis of various serous cavities.

Furthermore, there is a host of accurately described and clinically typical cases of Banti's disease in which the symptoms and findings simulated those of a Laennec cirrhosis so closely that the authors believe these two diseases to be identical. I shall discuss this part of the subject more extensively farther on.

Neuberg[10] summarizes his own views by saying that there are many case reports of clinical Banti's disease without known etiology, but with other pathologic findings than those described by Banti; while on the other hand there is an equally large number of case reports in which the characteristic lesions are described, but which have a definitely determined etiology.

2. Is the blood picture characteristic of Banti's disease? I have found the characteristic blood picture in various conditions in which the diagnosis of Banti's disease did not enter. The blood picture appears to be nothing more than the changes associated with any secondary anemia. Hedenius[11] concurs in this view. Banti in his most recent publication admits that the blood picture "is not pathognomonic but only helpful to the diagnosis."

3. Are the stages of the disease described by Banti invariable and is the cirrhosis always secondary to the splenomegaly? In other words, is a cirrhosis of the liver always absent in the first stage of Banti's disease and is it always present in the last stage? If, then, a patient dies with all the symptoms of Banti's disease and at necropsy no cirrhosis is found, must we diagnose Banti's disease in the first stage, or is the case not Banti's disease at all? And if the case is not Banti's disease, in what category may it be placed? The formulation of Banti's disease as occurring in stages has probably caused more of the hopeless confusion in regard to the interpretation of the disease than any other factor.

Numerous cases of clinically typical Banti's disease have been described in which at necropsy no cirrhosis was found. My two reports are cases in point. On the other hand, there is a host of reported cases with the characteristic pathologic changes, but with symptoms so typical of those which Banti described that they were regarded by their observers as cases of true cirrhosis of the liver.

Banti himself is not clear on this point. He admits that patients with clinical Banti's disease may show at necropsy no cirrhosis of the liver. In attempting to place these cases in their proper sphere he suggests a number of possibilities: (*a*) that they represent first stages of Banti's disease, and that in these cases the splenotoxin expended itself in merely creating a fatal anemia and not a cirrhosis of the liver; (*b*) that the lesion may be due to another toxic agent; (*c*) that after all there may be two nosologic entities: a splenomegaly with cirrhosis and a splenomegaly with anemia. Finally, he adds to the confusion by describing the pathologic findings in the first stage of what he himself regarded as genuine cases of Banti's disease. In such cases, he finds no cirrhosis. But the question arises, in view of the foregoing dicta set forth by Banti, How does he know that these cases were in the first stage? For, as I understand him, the diagnosis of Banti's disease is not justified unless cirrhosis is found postmorten.

We thus see from these three points of view, the most important among the clinical phases, that Banti's disease has most indeterminate outlines.

Let me now offer a critique from the pathologic-anatomic aspect.

4. What evidence is there for Banti's contention that a splenotoxin is a secondary cirrhosis of the liver? These are purely hypothetic assumptions, and are based on the fact that clinically the splenomegaly seemed to antedate the onset of the hepatic cirrhosis. The only scientific evidence that such a toxin is developed by the spleen in Banti's disease is the report of Umber,[12] who found in metabolism studies in one case that there was a protein destruction which disappeared after splenectomy. This observation has never been confirmed. Furthermore, the only experiment showing that a splenotoxin may cause changes in the liver is that of Mallory,[13] who, after causing extensive trauma to the spleen, found focal necrosis in the liver. This observation has been cited by various observers as upholding Banti's contention; but, according to my view, the arguments are only too specious. In the first place, dead tissue is not a toxin;

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[4] Marchand: Münch. med. Wchnschr., **51**, 463.

[5] Chiari: Strassb. med. Ztg., 1910, **7**, 66.

[6] Schmidt: München. med. Wchnschr., 1911, **58**, 625.

[7] Krull: Mitt. a. d. Grenzgeb. d. Med. u. Chir., 1915, **8**, No. 4.

[8] Kartulis: Zentralbl. f. Bakteriol. u. Parasitenk., 1912, **64**, Part 1, Orig. 1.

[9] Skubetsky: Wien. klin. Wchnschr., 1912, **62**, 1087.

[10] Neuberg: Ztschr. f. klin. Med., 1911-1912, **74**, 92.

[11] Hedenius: Ztschr. f. klin. Med., **63**, 306.

[12] Umber: Ztschr. f. klin. Med., 1905, **55**, 289.

[13] Mallory: Jour. Med. Research, **6**, 264.

and secondly, focal necrosis in the liver is not, nor does it ever bring about a cirrhosis.

Even from the hypothetic standpoint, the pathogenesis as described by Banti is difficult to conceive of. We must remember that Banti wishes us to believe that an extensive fibrosis of the spleen is the result of an unknown toxin, and that, furthermore, this fibrous spleen elaborates another toxin which acts directly on the liver. In the first place, the transference of a sclerosing toxin from one organ to another, has, as far as I can determine, no analogue in pathologic anatomy. If a sclerosing toxin is elaborated within the human body, it affects two or more organs simultaneously. Moreover, it is difficult to comprehend how an organ so extensively fibrous as a spleen in Banti's disease can elaborate a toxin that will in turn have sclerosing properties.

5. Are the histologic characters of the spleen described by Banti pathognomonic? Even Banti admits that these lesions are not pathognomonic of Banti's disease. Fibrosis of the spleen is, of course, found in a host of other conditions; in cirrhosis of the liver, for instance. Even what Banti regards as the most characteristic histologic detail, the eccentric fibrosis of the malpighian follicles, is not pathognomonic of his disease. My cases reveal this lesion, although in the strictest interpretation they are not cases of Banti's disease. The same holds true for the other associated lesions described by Banti.

All in all, it is well agreed by everybody, even by Banti himself, that a pathologic diagnosis of Banti's disease is impossible on the basis of the pathologic findings alone (Simmonds,[14] Neuberg, Marchand, Wentworth,[15] Kaufmann,[16] Hedenius, Borissowa,[17] Schewandin[18] and Naunyn[19]).

6. What evidence is there that the fibrosis of the spleen is a primary sclerosis and is not of inflammatory origin? Banti maintains that the process is a primary sclerosis because he does not see fibroblasts in the spleens of Banti's disease. This argument, to my mind, is weak. In the first place, cells resembling fibroblasts are seen in such spleens. Chiari, indeed, who in some particulars leans to Banti's views, asserts without hesitation that the fibrosis in Banti's disease is identical with the splenic fibrosis of any other origin. In the second place, the distinction between a fibrosis that arises from a so-called "primary sclerosis" and one of "inflammatory origin" is entirely an academic one, and is not countenanced by authorities in pathologic anatomy.

7. What is the evidence in favor of splenectomy as a cure for Banti's disease? In all his publications Banti has been advancing the beneficial results of splenectomy as one of the prime arguments in favor of the primary splenic origin of his disease. This statement, like many others that Banti has made, is much quoted in the literature of this subject.

I feel, however, after analysis of the reported cures, that this statement cannot be accepted without much hesitancy. A study of the reported cases shows either that (1) no proof is offered that the disease described conformed to Banti's specifications, or (2) the "cures" are reported altogether too soon after the operation.

1. Harris and Herzog,[20] who summarized all the reported cures up to 1901, describe unquestionable cases of Gaucher's disease in the number. Wentworth, who also is skeptical of reported cures of Banti's disease by splenectomy, reports a so-called "cure" that proved to be a syphilis of the liver. Marchand reports a similar instance. Naegeli-Nef[21] and Hedenius also believe that many of these reported cures are of maladies other than Banti's disease.

2. The second consideration that arouses scepticism is the fact that the cures are reported too soon after the operation. This is the criticism applicable to the majority of reported "cures." When we consider that even in the third stage a patient may live as long as five years, a cure reported within this time is not of profound significance. In one of the cases that I report, the patient lived for twelve years after the onset of the symptoms.

The most recent summary of splenectomies for Banti's disease that I have been able to find is that of Armstrong,[22] published in 1906. Of the thirty-two reports, only four were made five years after operation. In Banti's latest paper, he collects thirty-six instances with twenty recoveries. He says that two patients operated on in the "first stage" in 1895 and 1904, respectively, and two patients operated on during the "second stage" in 1896 and 1903, respectively, are well. He also makes the cryptic statement that patients operated on in the third stage afford good results. These few cases are all that I can find that in any way sustain splenectomy as a therapeutic measure for Banti's disease. The whole question of splenectomy as a cure for Banti's disease is paralleled, I believe, by our experience with splenectomy as a cure for pernicious anemia. With the first reports, its value seemed to be established; but as soon as sufficient time had elapsed to permit the observation of end-results, it was found that these patients with pernicious anemia succumbed despite the splenectomy, and that the splenectomy produced only a temporary improvement.

RELATION OF BANTI'S DISEASE TO ALLIED MORBID STATES

1. *Cirrhosis of the Liver.*—Banti's disease very closely resembles cirrhosis of the liver, both clinically and pathologically. Indeed, the view that the two conditions are identical is held by many, perhaps even by the majority of Banti's critics (Simmonds, Albu,[23] Gilbert and Lereboullet,[24] Krull, Naegeli-Nef, Naunyn and Wentworth).

Obviously the first argument that would occur to one in order to refute this identity is the different sequence of clinical events. In Banti's disease, a primary splenomegaly is followed by signs of cirrhosis, while in typical Laennec cirrhosis, the reverse is the rule. Nevertheless, I have seen cases of Laennec cirrhosis, and Krull, Naunyn, Wentworth and Marchand report similar experiences, in which splenomegaly is so profound as to mask the symptoms arising from the lesion within the liver.

Pathologically, also, the spleen of a Laennec cirrhosis and that of Banti's disease are in many respects alike. Both are distinguished by splenomegaly, fibrosis and atrophy of the malpighian follicles. In cirrhosis, it is true, the fibrosis is not so profound, and there is greater evidence of *Stauung* and hyperplasia of the pulp.

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[14] Simmonds: München. med. Wchnschr., **53**, 772.
[15] Wentworth: Boston Med. and Surg. Jour., **145**, 375.
[16] Kaufmann: Lehrb. der spez. path. Anat., Ed. 6, 1911.
[17] Borissowa: Virchows Arch. f. path. Anat., **172**, 108.
[18] Schewandin: Zentralbl. f. Path., **21**, 668.
[19] Naunyn: Verhandl. d. deutsch. path. Gesellsch., **8**.
[20] Harris and Herzog: Ann. Surg., 1901, **34**, 111.
[21] Naegeli-Nef: Cor.-Bl. f. schweiz. Aerzte, 1904, **24**, 280.
[22] Armstrong: Brit. Med. Jour., 1906, **2**, 1273.
[23] Albu: Deutsch. med. Wchnschr., 1904, **31**, 707.
[24] Gilbert and Lereboullet: Rev. de méd., 1904, **24**, 893.

In view, therefore, of the criteria which Banti adduced, a differentiation between Banti's disease and cirrhosis of the liver appears easy. However, when we consider the indefinite outlines, both clinical and pathologic, of Banti's disease, and on the other hand, the very close clinical and pathologic similarity of cirrhosis of the liver and Banti's disease, we can readily understand why so many authors regard the two maladies as identical. A precise differentiation will always be difficult when we must deal, as regards one factor at least, with a purely clinical entity.

2. *Relation of Banti's Disease to Splenic Anemia.*—This relation is a question that has puzzled nearly every one interested in this subject. Nor is it hard to understand the reason, when we consider that the term "splenic anemia" was ascribed by Griessinger to a purely clinical condition. It is thus a term of wide connotation and can be safely applied to any condition in which a splenomegaly of unusual size is associated with an anemia of whatever grade or type.

Since Griessinger's original communication, a number of fairly distinct forms of splenomegaly associated with anemia have been split from this broad group; for instance, the splenomegalies of the Gaucher type, which has a sharply defined pathologic and histologic picture; also the peculiar anemia occurring in children, known as von Jaksch anemia,[25] which has a sharply defined blood picture of its own. And now comes Banti, who also parcels off a portion of this "medical Poland" as his own. And what have we left? According to Banti, only such cases as are fatal and at necropsy show no cirrhosis. Even these cases Banti does not permit to slip out of his hand so easily, because he still feels that they may be cases of Banti's disease in the first stage. If this is admitted, then splenic anemia as an entity disappears completely. On the other hand, Naunyn is willing to call only such cases Banti's disease as are distinguished by splenomegaly without cirrhosis; that is, cases that were formerly termed "splenic anemia"; and Senator[26] says that a Banti disease is only a second stage of a splenic anemia; that is, a combination of splenic anemia and cirrhosis of the liver. The pronouncements of Senator and especially Naunyn are unfair, because Banti should be left to define his disease as he thinks best. If all of Banti's claims are then recognized, we shall arrive at what I regard as the most significant conclusion arising from this study, namely, that Banti's disease and splenic anemia are one and the same thing.

3. *Relation of Banti's Disease to Pseudoleukemia.*—At one time, according to Wentworth, Banti believed that the disease called by his name was the splenic form of pseudoleukemia. But in his most recent paper (1910) Banti does not even mention this name in connection with his disease. This is justified in view of the entirely different histologic characters of the spleen in pseudoleukemia and in Banti's disease.

TO THE PATHOLOGY OF BANTI'S DISEASE

Banti describes a pronounced endophlebitis and often calcification of the portal vein and its tributaries. He believed that this lesion was the result of the action of the splenotoxin on the intima. This lesion has been described many times in connection with this malady, notably by Dock and Warthin,[27] Levastini and Bloch[28] and Bonné.[29] My two cases present this lesion in a profound degree. Furthermore, other observers, Cauchois,[30] Edens,[31] Nonne, MacCallum,[32] Devé,[33] and Oettinger and Fiessinger,[34] report extensive thrombosis in the splenic and portal veins, arising either from an endophlebitis or without known cause, and associated with splenomegaly. The question arises whether Banti is right in his interpretation, or whether the splenic disease may occur as a consequence of the lesion in the vein. Warthin[35] raised this question and instituted experiments consisting in ligation of the splenic veins in dogs. He found that this operation resulted in no increase in the size of the spleen, but rather in an atrophy. Others believe that the splenomegaly is the result of the thrombosis. Cauchois, especially, devotes a lengthy thesis to prove the latter hypothesis, and attempts to make a separate group of cases presenting the Banti syndrome associated with pylothrombosis. His arguments are by no means convincing. This question can therefore safely be left open. The difficulty arises from the fact that sufficient data are not yet available to show whether an endophlebitis with or without calcification occurs unassociated with splenomegaly. In other words, this vein lesion may eventually prove to be entirely an incidental one, and not either a cause or an effect.

On the other hand, it is easily conceivable, indeed, very probable, that the endophlebitis of the splenic vein may cause an ascites in cases that present no cirrhosis of the liver. This may account for the many cases of clinical Banti's disease in which no cirrhosis is found post mortem. This is what probably occurred in my two cases.

SIMULATION OF BANTI'S DISEASE BY PERSISTENCE OF THE UMBILICAL VEIN

These cases are to my mind of much significance as pointing to a possible clue to the origin of many forms of splenomegaly, inclusive of that associated with the name of Banti. Four such cases have been described in comparatively recent times by Cruveilhier,[36] Baumgarten,[37] Masura[38] and Benque.[39] The clinical picture in all was that of Banti's disease. In addition there was hypoplasia of the liver, which these observers agreed was probably a result of the persistence of the umbilical vein. At necropsy, this vein was found enormously dilated, and communicated in some cases with the deep hypogastric or the deep epigastric vein. The excessive amount of blood which this vein carried into the portal sinus overtaxed its capacity and caused a stasis in the splenic vein. In this manner, the authors accounted for the enormous splenomegaly.

These cases seem to me to indicate the possibility that the splenomegaly of some cases of Banti's disease may be of primary vascular origin after all.

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[25] Some question has recently been raised as to the validity of this form of anemia as a distinct type. Some observers hold that it is only a form of secondary anemia with a profound blood reaction, owing to the heightened susceptibility of the bone marrow in children.

[26] Senator: Berl. klin. Wchnschr., 1901, **38**, 1145.

[27] Dock and Warthin: Tr. Assn. Am. Phys., **18**, 522.

[28] Levastini and Bloch: Bull. Soc. anat. de Paris, **79**, 352.

[29] Bonné: Inaug. Diss., Göttingen, 1884.

[30] Cauchois: Paris thèses, 1908.

[31] Edens: Mitt. a. d. Grenzgeb. d. Med. u. Chir., **18**, 59.

[32] MacCallum: Pathological Anatomy, 1916.

[33] Devé: Normandie med., March 1, 1908.

[34] Oettinger and Fiessinger, Rev. med., 1907.

[35] Warthin: Proc. Soc. Exper. Biol. and Med., **4**, 127.

[36] Cruveilhier: Anat. pathol. du corps humain, **16**, 6.

[37] Baumgarten: Arb. a. d. Gebiete der path. Anat. u. Bakter., 1908, **7**.

[38] Masura: Med. Klin., 1911, **8**, 103.

[39] Benque: Wien. klin. Wchnschr., **25**, 1240.

THE AUTHOR'S CONCEPTION OF BANTI'S DISEASE

I would deem this communication futile were its theme one of destructive criticism only. My critique, thus far, transports one, as far as the subject of primary splenomegaly with anemia is concerned, practically to the period antedating Banti's publications; not entirely, however. We give credit to Banti for stimulating investigation of an obscure malady, for elucidating much of the pathology of the condition, and for elaborating the clinical phenomena. What substitute, then, can be offered for Banti's conception, and where can the disease that he describes be correctly placed in nosology?

My study and reflection lead me to the following views:

1. All the evidence thus far submitted gives us no right to believe that splenic anemia and Banti's disease are not identical.

2. There is no reason for differentiating Banti's disease from other splenomegalies associated with anemia on the ground that in Banti's disease no etiology can be determined. A nosologic distinction based on whether a disease has a known or unknown etiology has no *raison d'être* in clinical medicine. Rather, I believe, we should regard Banti's disease as merely a nosologic and clinical entity which may be due to both known and unknown causes. The known causes are syphilis, alcohol, malaria, trypanosomiasis, persistence of umbilical vein, etc. In all these maladies, a splenomegaly, an indurative splenitis, with eventual atrophy of the malpighian follicles, and an anemia are the predominant features.

It may be argued that in the splenomegalies associated with alcohol, malaria, syphilis, etc., the causes of the disease and some of the clinical phenomena differ from those which Banti described. In reply, I answer: 1. Banti's disease has no typical course and diagnostic symptoms; indeed, if the specifications which Banti predicated are strictly adhered to as criteria for making a diagnosis, we would find that Banti's disease is extraordinarily rare. 2. A clinical diagnosis of Banti's disease has been made by most able clinicians in cases that eventually prove to be cirrhosis of the liver, malaria, syphilitic splenomegaly, etc. I have cited such instances in this communication. Again, it may be argued that the pathology of Banti's disease is quite different from that of the splenomegalies of known origin. But, as I have already pointed out, the pathology of Banti's disease is by no means a specific one. The fact that many observers hold that Banti's disease and cirrhosis of the liver are identical shows that this contention is not unjustified. 3. I believe that Banti's explanation of the cirrhosis of the liver as secondary to the splenotoxin is wrong. The reasons for this belief I have already discussed. Furthermore, I do not believe that patients who show at necropsy no cirrhosis of the liver should, as some hold, be regarded as affected with a different malady, or that such cases should be regarded, as does Banti, as instances of Banti's disease in the first stage.

I believe it is more logical and would simplify matters considerably to regard these variations as phenomena of one and the same disease; that a fibrogenetic toxin, probably of intestinal origin, attacks the organs draining the portal area, causing primarily a fibrosis of the spleen; and, if the toxin is sufficiently intense or the patient lives a sufficiently long time, causing a cirrhosis of the liver as well. I believe that the common association of sclerotic vascular changes in the mesenteric vessels in Banti's disease are most readily explainable on the same grounds.

Finally, in view of the fact that Banti has failed to make out a case for the disease called by his name and has not shown it to be a distinct entity, the term "Banti complex" should be substituted for the term "Banti's disease" in clinical medicine.

41 West Eighty-Third Street.

THE FRAMINGHAM HEALTH AND TUBERCULOSIS DEMONSTRATION *

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FRAMINGHAM, MASS.

As announced in the papers and elsewhere, the Framingham Community Health and Tuberculosis Demonstration is being conducted under the supervision of a committee organized by the National Association for the Study and Prevention of Tuberculosis. On this committee[1] are represented the National Tuberculosis Association, the Massachusetts State Department of Health, the United States Public Health Service, private antituberculosis organizations in Massachusetts, Connecticut, New York and Pennsylvania, and the Metropolitan Life Insurance Company, the donors of the $100,000 to be devoted to the work.

The selection of Framingham was made after several months' study of numerous communities of similar size in various parts of the United States, but particularly in Massachusetts and New York State. Framingham recommended itself to the committee because it possessed certain average qualities, being an industrial community, with mixed industries, varied racial groups, a good local health organization, backed up by an excellent state department of health, a normal amount of disease, particularly tuberculosis, well trained physicians and good hospitals, and sufficient promise of cooperation from medical, industrial, commercial and social organizations to give reasonable assurances of success.

Is it possible to discover and to place under adequate medical, nursing and relief supervision all of the cases of tuberculosis, incipient and advanced, in a normal industrial community?

Is it possible to ascertain, with some degree of definiteness, the responsible social and economic factors in disease causation, including all types of morbidity, not only tuberculosis?

What is the most efficient utilization of the existing means available for the discovery and treatment of disease? What percentage of theoretically preventable disease is practically preventable with the use of known but unused, or at least uncoordinated, instruments? What is the best possible adjustment of social forces, existing or to be created, with the objects of the prevention of unnecessary disease and death?

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] The committee in charge of the work is as follows: Dr. Edward R. Baldwin, chairman; Dr. Charles J. Hatfield, secretary, and Dr. Lee K. Frankel, Mr. Homer Folks, Dr. Arthur K. Stone, Dr. Eugene R. Kelley, Dr. Steven J. Maher, Dr. William Charles White, Mr. Henry S. Dennison, Dr. Victor Safford, Dr. F. C. Smith, and Dr. Charles L. Minor.

Such, in brief, are the fairly ambitious questions which Framingham is attempting to solve. If the community is the logical social unit for disease prevention and control, and if the time is right for the application of a complete program for disease prevention and health creation, there is every reason to hope that, in some degree at least, answers to the foregoing questions may be demonstrated. Obviously, the roblem is not only one of tuberculosis and not only ealth problem. Fundamentally it is a problem of ial and economic organization.

As indicated above, the objects of the investigation are to demonstrate what may be possible with united community action in the problem of prevention and ontrol of tuberculosis. Inevitably, the experiment, if t goes forward as planned, will broaden out into a general health demonstration concerning itself with the various disease-prevention problems, as they affect the several age groups, and utilizing in its effort at control all potential agencies — social, industrial, educational, medical, etc.

Briefly stated, the essentials of the demonstration, as viewed by the committee, are as follows:

1. The sympathetic cooperation of all individuals and organizations, public and private, in Framingham.

2. The execution of the program on an educational, persuasive and democratic basis, social machinery being devised to carry the various elements in the community organization along with the work as it progresses.

3. The utilization of expert advisory service whenever feasible. This principle applies, of course, to general sanitary, medical, nursing, educational, school or industrial problems.

In order to present before this audience the important phases of the program within the time allowed for this discussion, special attention must be paid to the medical and health aspects of the plan, and consequently only the briefest mention can be made of other significant steps.

It will be realized by any one who has given thought to the problems of preventive medicine that the phase of a complete community program present certain theoretically clear and distinct aspects. There is, in the first place, the preparation of the community for active participation in and full understanding of the work as it is carried out. Along with this go certain activities that may be considered diagnostic in character; that is to say, there must be first a carefully designed effort to make a diagnosis of the community's vital health needs.

These diagnostic activities are further subdivided, and fall under two heads: (1) those which are concerned with the physical conditions under which the people work and live, namely, the environment; and (2) those which apply particularly to the individuals themselves.

The final step is that of community treatment, involving the application of the diagnostic findings and the following out of the therapeutic indications on a community scale. For the sake of clarity as well as brevity, I will take up in a somewhat artificial chronological order the phases of the Framingham program as they have been developed or are foreshadowed in the health demonstration.

Time will allow for little more than an itemization of these steps. Their presentation in this order is, as stated above, entirely artificial, in view of the fact that numerous activities in all phases of the work have to be initiated and urged forward simultaneously.

A. PREPARATORY STEPS

As stated previously, it is felt by the committee in charge of this work that the whole project, if it is to be of permanent value, must be carried out on a democratic educational basis. For that reason, a great deal of attention has been given to certain fundamental preliminary measures, such as the following:

1. The acquainting of the people of Framingham with the motives, methods and practical objects of the demonstration. Special literature has been distributed, almost daily articles have been supplied to the press, and numerous meetings have been addressed on all sorts of occasions, etc.

2. An intimate and elastic local committee organization. This has involved the selection of a local executive committee (of thirteen members), a local advisory council, with numerous subcommittees, a committee on infant welfare, a committee on industry, etc. In addition, and most important, plans are being made for the early organization of small informal neighborhood committees, selected on a block basis, representative of the leading personalities in the community, to serve as a direct channel of interchange between the health demonstration office and the homes of the people.

3. The encouragement of the town to meet its own obligations, and to place the nonexperimental phases of the work on a basis of permanence. This work has already resulted in the handing over to the Community Health Station of two old school buildings for possible use in the treatment of tuberculous patients, or the so-called pretuberculous children, the laying of definite plans on the part of the local hospital to meet the outpatient clinical needs of the community, the establishment of permanent, full-time medical and nursing service for the schoolchildren, the establishment of supervising nursing service by the board of health, the establishment of full-time medical and nursing service for at least half of the industrial population, provision of a full-time secretary with plans for nursing and relief service under the auspices of a local civic league, etc.

4. The organization of a local medical club. The importance of this organization cannot be overestimated, serving as it does as a channel for reaching collectively the medical men in the community. It is an instrument by which their understanding of the program may be facilitated, and the universal adoption of certain diagnostic and treatment standards encouraged.

5. The determination of tuberculosis standards. This preliminary work has been carried out by a committee of specialists from Boston and elsewhere. There have been worked out, for presentation to and use by the local medical men in Framingham, standards for the diagnosis of incipient tuberculous disease, for the diagnosis of tuberculosis among children, for the classification of recognized tuberculosis, for treatment of tuberculosis in its several stages, etc.

B. COMMUNITY DIAGNOSTIC STEPS

As stated previously, the measures aimed at the evaluation of the community's needs fall under two groups.

The first concerns *the environment.* A study of the community's disease hazards has now been completed in Framingham. This study has touched in the main the following realms of human contact:

1. An analysis of the community's statistical background. This has involved a study of death, birth and sickness statistics for the past ten years, a careful determination for different geographic and racial sections in the community of infant mortality rates, a check-up on birth registration; an effort to correct the tuberculosis death rate during the past year, etc.

2. A study of rural sanitation. One of the reasons Framingham was selected was that it presented in part of the community a distinct rural problem. The rural study covered, therefore, the hazards of rural life, involving an analysis of stable, privy, food, drinking water, housing, and other factors.

3. A study of milk production and handling, a study of food sanitation in all kinds of food shops, etc.

4. A study of general sanitary conditions in the community at large, including a privy and well census, a survey of fly and mosquito breeding conditions, and other allied problems.

5. A very careful survey of hygienic conditions in the schools, including the problems of general sanitation, cleanliness facilities, illumination, ventilation, heating, seating, etc.

6. A thorough analysis of hazards in industry, including ventilation, illumination, dust, fumes, machine guarding and facilities for cleanliness.

All of these sanitary studies have been carried out under the direction of Mr. Franz Schneider, Jr., the sanitarian for the Russell Sage Foundation, and in this work he has had the cooperation and assistance of many agencies, including the Massachusetts State Department of Health, the Massachusetts State Board of Labor and Industries, the Museum of Safety, the New York State Commission on Ventilation, and the United States Public Health Service, all of which agencies have assigned men and instruments from time to time to assist in the completion of the survey program.

The second great division of the community diagnostic problem concerns *the people* themselves. Mention has been made previously of the measures taken to ascertain the hazards of life and work in Framingham. This work has been supplemented by several distinct efforts to ascertain what actual conditions prevail among the people of Framingham, including not only factors of medical and hygienic importance, but certain indirect, yet fundamental factors, social and economic in character. A brief mention of the chief measures follows:

1. A study of infant and child life in Framingham, including particularly the preschool group. In this work we have had the cooperation of the *Delineator* magazine in its infant welfare campaign. This has made possible the visiting of every home in Framingham in which a birth was recorded during the last year, with the enumeration of certain essential prenatal, obstetric and postnatal facts. This work, coupled with an aggressive baby week campaign, has resulted in the establishment of infant clinics, on a permanent basis, involving the cooperation of the local physicians, assisted by expert consultants in difficult cases of infant morbidity.

2. A tuberculin survey of children from 1 to 7 years of age.

3. A study of physical conditions among the schoolchildren, as a part of the community's plan for full-time medical and nursing supervision of the school population.

4. A survey of social and economic conditions in Framingham, bringing out facts regarding home hygiene, income and rent, etc. This work was done in cooperation with the Massachusetts Committee on Safety, and was in reality a part of a patriotic census of resources, taken by 200 volunteer enumerators. For the most part, these enumerators were selected from their own districts, and form the nucleus for future community social organization, making possible a perpetual check on changing economic and social conditions.

5. A health or sickness canvass of rural as well as urban parts of Framingham. This work was done by nurses secured from the local hospital, as well as from cooperating Boston organizations, such as the Boston District Nursing Association. In part, also, several large insurance companies represented in Framingham, such as the Metropolitan, the John Hancock and the Prudential, aided materially in the collection of data regarding recognized and admitted illness.

Fortunately, this sickness census included those families which were later given thorough medical examinations, thereby making possible for the first time a direct comparison between sickness census findings and genuine medical examination results. In this sickness census work about 2,000 families, representing all types and conditions of people in Framingham, were covered.

6. A medical examination campaign. In this work, the most important and radical step taken thus far, about 1,000 families were first visited by nurses and insurance agents, in order to take a sickness census, and to make arrangements for medical examinations. Histories were then taken of those individuals willing to be examined, subsequent to which the people themselves, men, women and children, were given a thorough medical examination in the homes. This work involved the employment of seventy-two physicians from out of town, specially trained in tuberculosis work. It also took the full time of twenty-five nurses and eighteen laboratory workers to cover the field in one week's time.

In all, 2,400 histories were taken, 2,000 people examined, and 1,400 urinalyses made. The people examined were reasonably well distributed as to age, sex, nationality, economic condition and geographic distribution, the results being therefore representative not only of Framingham as a whole, but of any other typical American industrial community.

The final analysis of the results of this medical work is still under way, and for that reason it would be impossible, even if time permitted, to discuss the results more fully at this time. It is believed, however, that an unexpectedly large amount of suspicious and positive tuberculosis has been discovered, involving a follow-up nursing and medical program of major importance.

The committee is convinced also that the results of the work, on the general medical as well as on the tuberculosis side, will serve as a very effective instrument for the promotion of routine thorough medical examinations of supposedly healthy people.

Fortunately, the medical examinations have now become more or less endemic in Framingham, and are being carried out not only by community health station representatives, but also by local physicians. The local men are calling in expert consultants when needed, are using standard history and examination record forms, and are charging a standard price for health examinations on an individual or, preferably, on a family basis.

C. COMMUNITY TREATMENT

The foregoing measures indicate for the most part the progress to date of the Framingham Community Health and Tuberculosis Demonstration. It remains now briefly to point out what seem to the committee to be the follow-up steps, the community treatment measures, as indicated by the preliminary findings.

Obviously, there is still much to be done on the diagnostic side. A careful analysis of results thus far will indicate further measures of significance, if we are to derive from this demonstration an exact knowledge of the factors that are of importance in the production and perpetuation of tuberculosis in a normal American community.

Medical findings must be correlated with social and economic conditions. Light must be thrown, if possible, on the relative importance of infection on the one hand, and hereditary resistance on the other. Only an intensive scrutiny of the progress of the work as carried out along accepted, routine lines will indicate probable loopholes in the community's defense against disease, and probable additional measures for filling the gaps hitherto undemonstrated.

The major treatment activities immediately contemplated are as follows:

1. The correction of environmental conditions. The Community Health Station feels assured of the cooperation of local official and private agencies in the application of the findings of the sanitary study, in schools, factories, etc., or in the community at large.

2. Education and publicity. The Community Health Station will make every effort to popularize those findings which require public support for their effective application. A program of education is under construction which will reach all interests in the community, which will use not only special occasions, but also routine educational channels, such as the schools, the churches, the clubs and the factories. This work ought to lay the basis for future hygienic practices in the homes, schools, factories and workshops. It ought also to result in bringing under continuous and competent medical supervision the major part of the entire population as a result of the popularization of the medical examination finding, etc.

3. The continued encouragement of the community to meet its own obligations. This applies not only to the public requirements, such as school medical inspection, public health nursing, etc., as mentioned in an earlier part of the paper, but also such measures as medical factory inspection, improvement in dairy conditions, etc.

4. The use of the local medical organization to bring about a higher degree of efficiency and standardization in local medical diagnosis and therapeutics. An expert consultation system is being worked out. With the cooperation of the public health service, the physicians are being asked to report all types of morbidity. Standard methods for diagnosis and treatment for tuberculous cases are being advocated. Lectures and clinics bearing particularly on the detection of incipient disease are being planned under the auspices of the local medical club and the Extension Department of the Harvard Medical School, etc.

5. The coordination of nursing activities. The nursing agencies in the community, including the District Nursing Association, the local hospital training school nurses, the Civic League relief and infant welfare nurse, the school nurse, the factory nurses, and the board of health, public health and tuberculosis nurse, are also being coordinated into a nursing unit, with adequate expert supervision, emphasizing the principle of generalized rather than specialized nursing. In this work, the board of health nurse will act as the central agent, supervising the work of the other agencies on a basis of mutual understanding and cooperation.

6. Provision for outpatient medical service. The local hospital has plans for setting aside a part of its equipment sufficient to provide outpatient medical, minor surgical, infant welfare, nose and throat, eye refraction, and dental services. This work will be developed in cooperation with the local medical club, assisted by expert consultation service when necessary, and will be placed so far as possible on a self-supporting, pay, medical compensation basis. It will provide medical and health center facilities, not only for the community at large, but also for the diagnostic end of the medical services in schools and factories in the community.

7. The careful follow-up of the results of the medical examination and infant consultation campaigns, arranging for treatment by the local physicians. This follow-up work will involve certain problems not directly related to the special tuberculosis interests of the community. The groups of citizens' reports as a result of the medical examination work will be as follows:

(*a*) Normal individuals.

(*b*) Individuals with slight affections, to be referred by correspondence to their physicians for treatment.

(*c*) Individuals with nontuberculous, serious affections, to be referred by correspondence and by visiting nurses to their physicians for treatment.

(*d*) Venereal cases to be handled confidentially with the local physicians.

(*e*) Glandular cases in children, possibly tuberculous, to be reached by special nursing and educational follow up.

(*f*) Tuberculosis cases, positive or suspicious, on which the follow-up energies of the Community Health Station will be specially concentrated. This will involve nursing visits, subsequent reexaminations, treatment by local physicians, or through other channels on an expert consultation basis, final classification as to diagnosis, and continuous follow-up educational activity.

8. The use of all available treatment facilities for tuberculosis cases. This in brief involves the utilization of at least the following channels:

(*a*) Home treatment, with the aid of the local physicians, in the great majority of cases. In Framingham it will probably be possible to find the diseased individuals in the early stages of the infection, when moderate modifications in diet, personal hygiene, work, etc., will constitute adequate measures against the development of the disease. In these cases, of course, special educational and perhaps medical measures will have to be taken to prevent the spread of infection, particularly to infants and children.

(*b*) The establishment of summer camps or perhaps a preventorium for delicate children, with or without suspicious glandular development, previously known to have been exposed to the disease. For this purpose it may be possible to utilize one of the old school buildings in Framingham, held over by the town administration for this use.

(*c*) The establishment of at least a temporary and possibly a permanent local institution or clearing house for advanced cases among males and females, adults and children. This will be useful for patients on state institution waiting lists, for patients who do not desire to leave the community, or for patients whose presence at home will involve the hazardous exposure of other members of the family. Such an institution can be organized in Framingham as a distant ward of the local hospital, thereby saving considerable overhead expense in nursing and other charges.

(*d*) The local hospital has placed at the disposal of the Community Health Station a sun room for the treatment of surgical cases of the disease.

(*e*) Wherever possible, established treatment facilities for advanced cases, or for incipient cases likely to be improved by out of town treatment, will be used. This includes the four Massachusetts state institutions, several neighboring private hospitals, a large county hospital now under construction, etc.

9. Continued hygienic education. This, of course, is an ever present need in any community, and will be carried out continuously through all regular and special channels, reaching school, factory and other groups. This public health educational work will for the most part be under the permanent supervision of an established local organization, namely, the Civic League. An effort will be made to bring under this organization all private agencies interested in health or preventive medical work, thereby coordinating and centralizing efforts along these lines.

10. The coordination and permanence of local health and relief activities. As stated in the beginning, one of the essentials of the program is to have perpetuated on a permanent basis those activities which are demonstrated to be of continuous value to the community.

There exist in Framingham two agencies for this work: (1) the board of health, which, with the assistance of the other official branches of the town government, is being encouraged to meet the normal community needs along public lines, and (2) the local Civic League, which organization is equipping itself to carry on health educational work, to promote domestic science and home economic education in cooperation with the local public and normal schools, to coordinate and carry out on a satisfactory basis whatever relief work is necessary in the community, and in general to systematize and place on a permanent basis of efficiency those health, educational and charitable activities not recognized by the town itself as official obligations. This coordination of public and private agencies will make a permanent social organization that ought to continue to meet the community's needs along all these lines, subsequent to the experimental stages of the health demonstration. The Civic League will also give attention to recreation facilities.

SUMMARY

The methods and objects of the Framingham Community Health and Tuberculosis Demonstration are so directed as to discover disease, especially tuberculosis, in its incipiency, with the help of the local physicians, through the special examinations that have been and that are being carried on, and through the special work among infants, in schools, in factories, and elsewhere.

Adequate treatment facilities, especially for tuberculosis, will be provided as outlined above, whenever possible, on a basis of permanence, and in such a way as to require the local community to meet its own logical and natural obligations.

Finally, it is hoped that general sanitation, health education, and continuous medical supervision will act as effective instruments in the prevention of unnecessary disease and defect.

Thus far the health demonstration has demonstrated that with sympathetic cooperation from local and outside agencies, the basis for community social control over disease-producing factors can be laid. It is the hope of the committee that further developments of the work will demonstrate that on a community basis disease may be prevented and health created, thereby laying a permanent physical foundation for future social, economic and spiritual evolution.

ABSTRACT OF DISCUSSION

Dr. S. Adolphus Knopf, New York: When one desires to improve the health, vigor and morale of the community, with a view particularly to preventing the development and spread of tuberculosis, one should begin at the beginning; that is to say, with prenatal as well as postnatal care of the infant. Thus, if the mother is a working woman, she should not be allowed to work until the day before her confinement, but should be given prepuerperal care of at least two to three weeks, with instruction how to care for herself and child after birth. Breast feeding should be insisted on whenever possible. Military statistics in foreign countries prove that the breast fed candidates make better recruits than the ones who were artificially fed when babies. Unfortunately, poor working mothers are often deprived of the privilege of nursing their little ones as they should be nursed, because the few moments which can be utilized when the baby is brought to the factory do not suffice to give the child the necessary quantity of food. By and by the baby is fed artificially at home.

It seems to me in a community experiment this underfeeding of infants, particularly among the working classes, should be prevented. This neglect is, of course, equally sinful, if not more so, in the well-to-do classes who find it more convenient to have their children artificially fed. In our kindergartens the little ones often catch colds which ultimately develop into tuberculosis. In the report submitted to us by Dr. Armstrong I did not see any mention made of school luncheons. The underfed schoolchild cannot do as good work as the well fed child.

I am sorry to say that I did not see anything mentioned in the report as to the efforts made to keep the atmosphere as clear as possible. Can the doctor tell me whether they use hard coal or soft coal in Framingham.

Dr. D. B. Armstrong, Framingham, Mass.: They probably use some of both.

Dr. Maurice Fishberg, New York: It is interesting to see that at last, on a small scale, an experiment is being made to determine the real value of the methods we have been applying for twenty or thirty years and how far they have been effective in eradicating tuberculosis. Although we are now spending over $20,000,000 annually on the prophylaxis of tuberculosis, we have no exact data on which to base any method which will surely be effective. One physician tells us that everything seems all right excepting that in the inquiry the number of infants that are artificially fed should be ascertained. There is no doubt that breast feeding prevents many diseases of infancy; but 99 per cent. of my hospital patients have been breast fed, yet now they are tuberculous. We are also told that no success can be expected at Framingham unless the use of soft coal is prohibited. To be sure, smoke is a nuisance, but it does not cause tuberculosis. In Pittsburgh the tuberculosis mortality is very low and coal miners are almost immune to this disease. The work at Framingham will therefore have to be along different lines.

Too much cannot be expected in an experiment of three to five years. Tuberculous disease is not synchronous with infection, excepting during infancy. Infants, when exposed, are infected, become sick and die within a comparatively short time. But adults become sick with tuberculosis as a result of infection dating back to childhood. The adult population of Framingham has undoubtedly been infected with the tubercle bacillus long ago, and whether they will become sick with the disease depends no more on infection, but on other factors. As to what reactivates the dormant processes in the lungs remains to be determined, and the committee at Framingham has an opportunity to give us the information we are now lacking. But prophylaxis of infection should only be attempted in the case of infants.

The question of diagnosis in New York has not yet been solved. The municipal sanatorium is said to have 40 to 60 per cent. of sputum-negative cases. Now, wherever careful investigations have been made it was found that hardly over 10 per cent. of sputum-negative cases, presenting suspicious symptoms and signs of tuberculosis, are really suffering from this disease and in need of prolonged treatment. Over 10 per cent. of patients in hospitals for advanced consumptives have been found nontuberculous at necropsies. I hope that the work at Framingham will be done more by clinicians than by social workers, so that the number of nontuberculous persons treated as sick with tuberculosis will be reduced to a minimum.

I should like to warn you against judging the value of the experiment on the data supplied by the mortality rates. The tuberculosis mortality rates have been declining for over fifty years in all civilized countries; in New York, Philadelphia and Boston, for over one hundred years; while our prophylactic measures have been applied only since the last fifteen or twenty years. To be significant, the drop in the mortality rates will have to be more pronounced, the curve will have to be more steep, than it has been during the past twenty years.

Dr. Haven Emerson, New York: I have not the figures at hand as to the percentage of patients sent to the municipal sanatorium at Otisville who are positive sputum cases. The patients are mostly positive bacillus carriers, removed from homes where there are children in the household; and the others are patients who are sick enough to need sanatorium care on their own account, and are really acutely sick patients, whom any physician would wish to have put under bed care: so much so is this the case that we have found it necessary to insist on having an infirmary in which these patients can be cared for, as if in an acute hospital. What Dr. Fishberg says may have been true of the way in which the sanatorium was operated at first, when the conception of it was as a hospital for the treatment of incipient tuberculosis. The sanatorium now is operated with the idea of its being primarily to play a part in the sanitary control of the disease.

Dr. Fishberg's figures may have been based on the previous operation of the sanatorium, but I think that does not give a true impression of the character of the patients we are now admitting

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Improvement in Retarded Children.—It is a well known fact that children who are retarded and far below the average intelligence at an early period may as they grow older catch up a year or two in mental growth. The fact that a child grades below the average by formal tests is not an infallible sign that he will never develop beyond the mental attainments of a child. An analogy is found in the retarded physical development of certain children.—Treadway, *Public Health Report,* Nov. 24, 1916.

CEREBRAL SPASTIC PARALYSIS DUE TO HEMORRHAGE

A FURTHER REPORT OF THE FIRST SIXTY-FIVE CASES OF CRANIAL DECOMPRESSION FOR SELECTED CASES *

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AND
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The patients were carefully selected, and only those with signs of persistent intracranial pressure were chosen, this constituting less than 25 per cent. of those examined. Ophthalmoscopic examination revealed dilated retinal veins and blurring of the optic disks; in the later cases, these findings of increased pressure have been confirmed by the measurement of the cerebrospinal fluid at lumbar puncture by the use of the spinal mercurial manometer. In all of the cases there was a history of prolonged and difficult labor, most of them being instrumental deliveries. A negative Wassermann test of both blood and spinal fluid was obtained in every case except one. No selection was made as to age, spasticity or mental deficiency. Microcephalic children, cases of agenesia (so-called Little's disease), and those due to meningo-encephalitis were naturally excluded as nonoperable, there being no increased intracranial pressure.

The pathologic condition, as found at operation and and post mortem, was noted, a written permission for necropsy having been obtained in each case. A definite fibrous cystic formation was invariably present. This lesion was supracortical in all but four cases, the others being subcortical or cortical. The cysts were punctured and their outer walls removed; fibrous formation was removed except in cases in which its removal would have caused damage to the underlying tissue; in these cases it was left alone.

After-treatment consisted in the correction of deformities by tendon lengthenings, stretching of muscles, tendon transplants, etc., massage, and careful muscle education with special attention toward establishing an improved coordination.

Of the sixty-five patients, nine died after operation, and eight have died in the past two years, making a total of seventeen deaths. We have been unable to obtain any record of four; nineteen show practically no change; twenty-five show improvement more or less marked; the youngest patient was 2½ years of age, and the oldest 17 years.

When epilepsy is a complicating factor, the prognosis is invariably bad; the immediate results were gratifying in that the convulsive seizures were less frequent, but this improvement lasted only for a few months. The younger the child, generally speaking, the more marked has been the improvement. The older the child, the less marked the improvement. In the adult cases there has been practically no improvement. Supracortical lesions are the only favorable cases; in this type damage to the nerve cells is due to pressure alone from the overlying lesion. In the cortical or subcortical lesions, there is, naturally, a definite destruction of brain tissue, and only in those cells along the edges of the cyst that are suffering from pressure can any improvement be expected.

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* The preliminary report of this work appeared in The Journal, Feb. 6, 1915, p. 482.

* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

CONCLUSION

We want to make an appeal for better preventive means in avoiding this most distressing affliction. First of all, we need more care on the part of the obstetrician: careful pelvic measurements should be made as early as possible; prolonged labor should be avoided whenever possible; practitioners should realize that cesarean section is less dangerous to mother and child than is the use of the high forceps; every child should be as carefully inspected during the first few weeks of life for symptoms and signs of intracranial hemorrhage as for deformities. When these symptoms and signs are present, a cranial decompression operation should be performed as early as possible in those selected cases in which the fluid or clotted blood can be removed before any (or but little) permanent damage to the brain tissue has taken place. In this manner we believe that children suffering from this form of spastic paralysis can be reduced in number, and that the most severe cases can be avoided or improved. The essential points to be emphasized are the early diagnosis and early treatment of these selected cases.

ABSTRACT OF DISCUSSION

Dr. Fred J. Fassett, Seattle: We have, in previous times, seen promises given for the relief of such deplorable conditions, and have had good reports from the treatment up to a certain point, and there the matter has apparently dropped. I think that when it has been shown that a remedy that seemed promising at first has later become less promising, there is a tendency to drop the subject on the part of those who have introduced it, thus leaving the rest of us in the air, so to speak, as to the ultimate results. We are asked often what the final outcome was in such cases, and are compelled to answer that we do not know. We in the West have sometimes seen patients who have traveled thousands of miles to be treated in some new way, only to find out that had the later results been published, the trip would have been unnecessary. I wish, therefore, to commend the frankness with which these gentlemen have reported to us this definite conclusion of their work.

Dr. William Sharpe, New York: Dr. Farrell and I have endeavored in this report to be as conservative and as critical in regard to the results in these first sixty-five cases as one could possibly be. The point we wish to emphasize is that most of these patients over 3 years of age are derelicts, and no marked improvement can be expected in many of them. These extreme cases can be somewhat improved, but the improvement, as you see, in many of them is slight. Indeed, in only twenty-five out of our first sixty-five cases, which were of the most extreme type of the condition, can we say that the operation was justified by the results obtained.

We wish also to emphasize the fact that the cases should be diagnosed early—as soon as possible after birth—by means of careful ophthalmoscopic examinations, a measurement of the pressure of the cerebrospinal fluid at lumbar puncture by means of the spinal mercurial manometer, blood and spinal fluid Wassermann tests, etc. By selecting these patients carefully and operating only on the ones with increased intracranial pressure can we expect to obtain definite results. I have now operated on nine of these infants on the day after birth, with excellent results. Only about one out of every five patients examined has shown signs of increased intracranial pressure, and naturally only these selected patients were operated on.

I wish also to emphasize the importance of getting permission for necropsy in this work. Of the 282 children I have now operated on out of almost 1,400 children examined, we have had permission for necropsy in every case before the operation, and of the twenty-eight children who died we found the intracranial hemorrhage in all but one of them. In the early cases we can get excellent results; but in the wrecks or derelicts of several years' duration, very little can be expected in the way of a marked improvement.

THE IMPORTANCE OF THE LIGAMENTS OF THE ANKLE IN CORRECTION OF CONGENITAL CLUBFOOT *

ISADORE ZADEK, M.D.
AND
E. L. BARNETT, M.D.
NEW YORK

It is generally conceded that the best time to begin treatment in cases of congenital clubfoot is within a few weeks after birth.

The usual procedure is to correct the varus by means of manual force, gradually overcoming the deformity and maintaining by means of plaster of Paris the correction obtained each time. When the varus has been overcome completely, and the foot is overcorrected and in eversion, the equinus is attacked. A similar method is followed here, using plaster of Paris, braces, or adhesive tape, to maintain the amount of correction obtained. This suffices in a large percentage of cases to effect an anatomic restoration of the affected structures of the foot. However, this leaves a large percentage still uncorrected.

Fig. 1.—After achillotomy; patient aged 5½ years; foot pushed up as far as possible; no change.

It is with the element of equinus that we have been chiefly concerned. Observation of a considerable number of so-called cured congenital clubfeet treated by manipulation shows the varus practically overcome, while the child stands and walks without being able to put his heel squarely on the ground.

A properly cured case of congenital clubfoot treated by one of the usual methods in vogue, employing only manual force, shows at the end of treatment a considerable degree of dorsal flexion of the foot. When the foot goes into dorsal flexion it goes as a whole, so that the plantar surface is in one plane.

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* From the clinic of the Hospital for the Ruptured and Crippled.

* Read before the Orthopedic Section of the New York Academy of Medicine, May 18, 1917.

In many cases results are not so fortunate. In these unsucessful cases the foot can be pushed up almost to a right angle with the sole in one plane, but when further correction is attempted we get a sole with a generally rounded contour. This means that the malposition of the os calcis and astragalus has not been rectified. In these cases we have made our correction in the front half of the foot at the mediotarsal and subastragaloid joints, and we have broken up the normal relations of the bones of the foot, producing an parently overcorrected-noncorrected equinus." The vitable result is that this overcorrected part of the foot later drops to a position relatively normal as regards the posterior half of the foot. We then have a so-called "relapsed clubfoot," which term is a misnomer.

At this stage, one finds dorsal flexion of the foot *restricted, and the resistant structures show no elasticity* and hence no give under steady pressure of extreme force. The obstacle shows so little tendency to yield that one might readily conclude that it was bony.

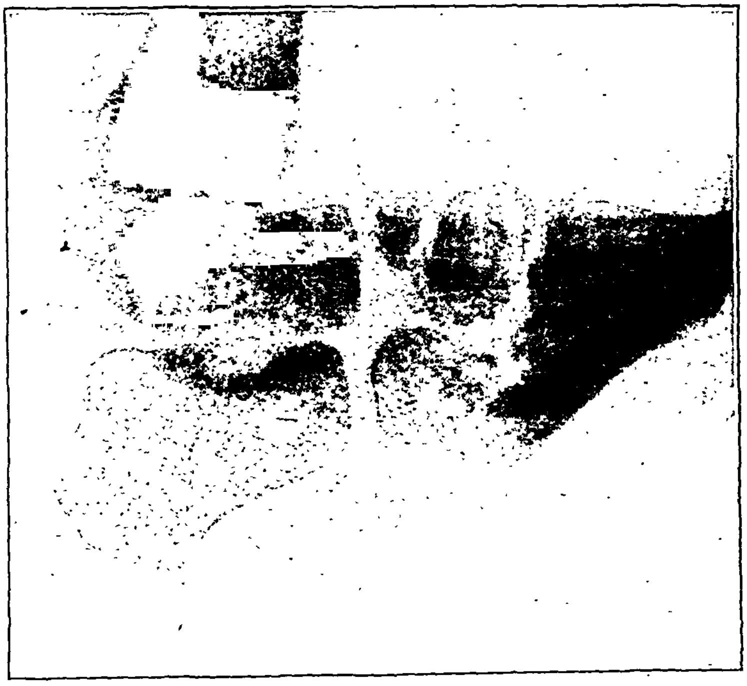

Fig. 2.—Following achillotomy; same patient; posterior ligaments of ankle were cut subcutaneously; now foot can be pushed into dorsal flexion, and os calcis tilts up to normal degree.

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We have followed by means of the Roentgen ray the relative effect of section of the Achilles tendon and the posterior ligaments of the ankle joint, as regards the freedom of dorsal flexion of the foot immediately afterward and the positions assumed by the os calcis (Figs. 1 and 2).

We were unaware of the ease with which the posterior ligaments of the ankle can be cut subcutaneously, and our first case was done under the fluoroscope.

The technic which we have employed has been to use a tenotomy knife with a long shank and small blade with a cutting edge only on one side. The knife is inserted on the inner side of the ankle just at the inner edge of the Achilles tendon, and on a level with the tip of the internal malleolus. The back of the blade is turned inward. After penetrating from a quarter to half an inch, depending on the age of the patient, the blade is turned so as to lift the vessels, nerves, and other structures up on its back, and the blade is pushed deeper. Maintaining this position, the blade is swept outward from the internal malleolus while pushing up on the foot. There is an audible and palpable grating while the sawing motion is in progress. After all the resistant structures have been cut, the tenotome is withdrawn and the foot is pushed up. There is a give and sometimes an audible cracking. Now one finds the os calcis tilted up. We have thus far treated in the manner described twelve clubfeet. We would caution against using this procedure soon after manual correction has been attempted, as the foot broken and weakened at the mediotarsal joint will give at this point, and thus will not allow sufficient leverage to obtain the desired dorsal flexion of the foot as a whole.

CONCLUSIONS

1. One of us, from observation of several hundred cases of congenital clubfoot treated by the usual methods, has noted that practically none of the severe cases shows dorsal flexion to a right angle without breaking the mediotarsal joint. In view of this observation of failure to procure sufficient dorsal flexion to insure stable locomotion, this operation has been devised.

2. From a study of these cases by the Roentgen-ray, we conclude that the only reliable test for the correction of the equinus if there is a rounded sole is a roentgenogram. Many cases which have shown apparent overcorrection, when studied by the Roentgen ray show a break at the mediotarsal joint, with the malposition of the os calcis not rectified. These are the cases which later, never having had the equinus overcorrected, gradually become worse and constitute the early "relapsed clubfeet."

The Fundamentals of Military Efficiency.—Military efficiency in an individual, then, rests upon certain considerations, chief among which are health, strength and activity. To secure and keep these qualities it is essential for every man to form such habits as experience has shown to be necessary. These habits are: personal cleanliness; regulation of diet; avoidance of excesses (particularly in eating, drinking, and sexual matters); wearing suitable clothing; keeping the bodily processes at work (kidneys, bowels, skin); taking sufficient exercise, preferably in the open air; devoting a proper part of each day to rest of body and mind, with recreation for the latter; maintaining the surroundings in which one lives, in a cleanly state.—Keefer, *Military Hygiene.*

A CASE OF EPIDERMOPHYTON INFECTION OF THE SCALP*

RICHARD S. WEISS, M.D.

ST. LOUIS

The recent work of Ormsby and Mitchell[1] has revived interest in the ringworm infections of the skin.

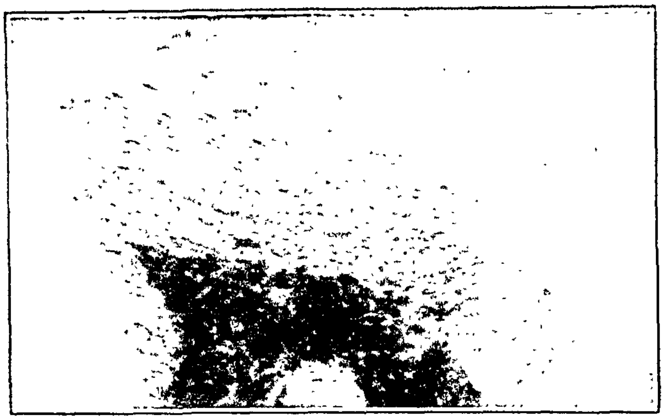

Fig. 1.—Pubic region, showing typical "eczema marginatum."

These observers call our attention to the fact that many cases of dermatitis are caused by these parasites and by one in particular, the *Epidermophyton inguinale* (Sabouraud).

A patient has recently come under observation who shows practically all distributions of epidermophyton infection, and in addition shows a new distribution, a large patch of the disease on the scalp. A careful survey of the literature which is available reveals no similar distribution, and I therefore put the case on record.

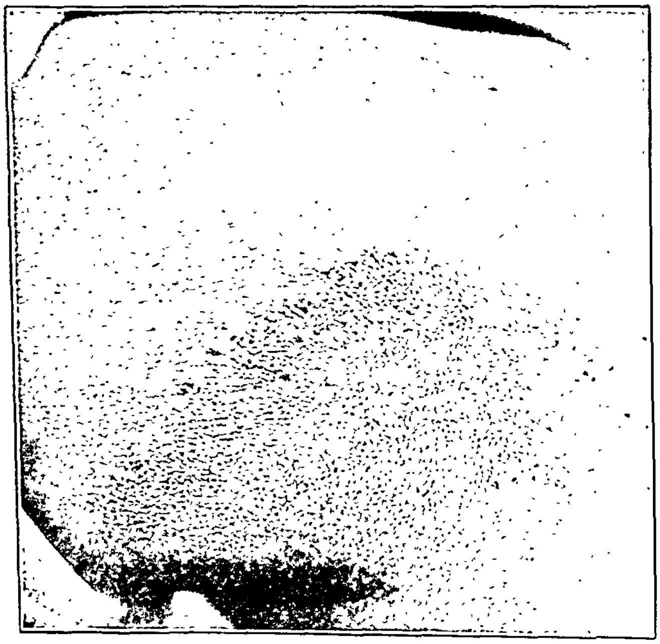

Fig. 2.—The lesion at the side of the left knee.

REPORT OF CASE

R. K., a man, aged 27, entered the Washington University Dispensary Skin Clinic, Feb. 23, 1917, complaining of "eczema." His family history and past history have no bearing on the case. He denied having had gonorrhea or syphilis. With the exception of a slight enlargement of the thyroid, the physical examination was negative.

The present illness began in November, 1915, as a few little blisters on the bottom of the right foot. It spread slowly upward between the toes and around the nails. Itching was rather severe, and there was weeping and crusting. About five months later, other patches appeared about the genitals and on the arms. These patches did not itch, but they spread rapidly. Recently patches have appeared around the left knee and on the legs. The eruption as a whole has been gradually spreading, and the itching has been getting worse. The hands were involved about a month after the disease began, blisters appearing between the fingers. These would break and a crust would form. These lesions healed spontaneously in about a month. A patch on the back of the scalp was first noticed in March, 1917.

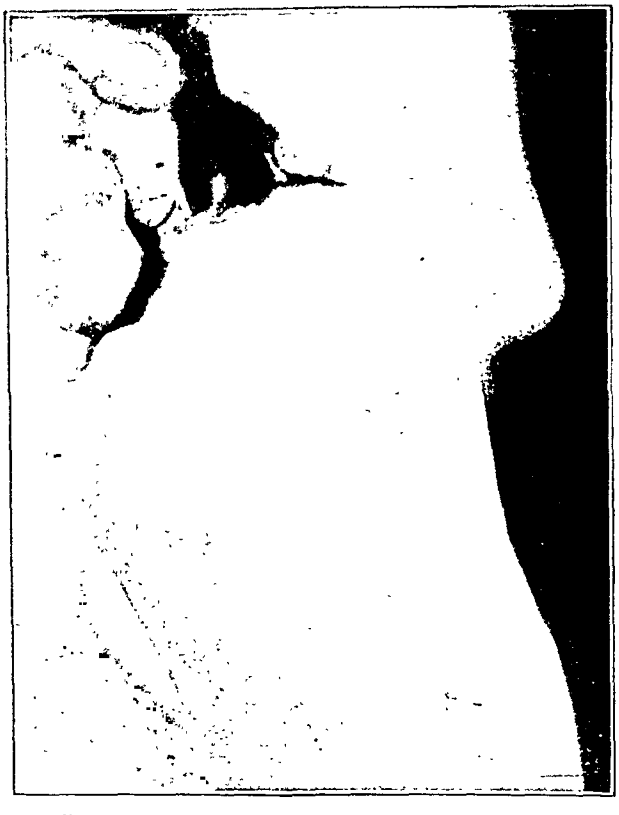

Fig. 3.—The maceration under and between the toes.

The Skin Lesions.—Distributed in various regions, the patient presents patches of characteristic dermatitis.

In the pubic, genitocrural, perineal and anal regions a typical "eczema marginatum" is found. It is of unusually extensive distribution (Fig. 1). The primary lesions are tiny vesicles and scaly papules in a typical ring arrangement, spreading at the border and clearing in the center.

On the middle third, posterior surface of the right arm, a similar patch presents itself. It has the same characteristics and is about 5 inches in diameter.

On the middle third, inner surface of the left thigh, is a similar patch about 4 inches in diameter.

Covering the internal and part of the posterior surface of the left knee another large patch is found. It is about 8 inches in its longest diameter (Fig. 2).

The right foot is also involved (Fig. 3). Beginning at the tarsometatarsal articulations and extending upward on the plantar and inner surfaces of the toes is a vesicular dermatitis with much scaling and maceration. The maceration is an especial feature between and behind the toes. Here the lesion presents undermined borders and deep maceration, and is typically characteristic of the disease in this location.

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* From the Department of Dermatology, Washington University Medical School.

[1] Ormsby, O. S., and Mitchell, J. H.: Ringworm of Hands and Feet, The Journal A. M. A., Sept. 2, 1916, p. 711.

The back of the scalp is markedly involved (Fig. 4). The lesion takes the form of a segment of a circle, and is about 6 inches long. The advancing border consists of a ridge of scaly papules. There are no vesicles to be seen. The color is dull red somewhat masked by the hair. There is no alopecia.

The Organism.—Scrapings were made from the edge of most of the lesions, including the scalp, and fungi corresponding in type to the *Epidermophyton inguinale* were demonstrated in potassium hydroxid preparations.

Cultures were made from the edge of the scalp lesion on Sabouraud's medium and on glucose agar. Only *Staphylococcus aureus* grew in the Sabouraud tubes. On the glucose ar, *Staphylococcus aureus* appeared in a few days. About en days later, small yellowish colonies of fungi made their appearance and slowly grew until in about three weeks they were about one-half inch in diameter (Figs. 5 and 6). The color was a dirty white with a slight tinge of yellow. A week or so later the colonies were covered with fluffy, white tufts. Subcultures were made on glucose agar. The organism reproduced true to type, but the cultures were also contaminated with staphylococcus.

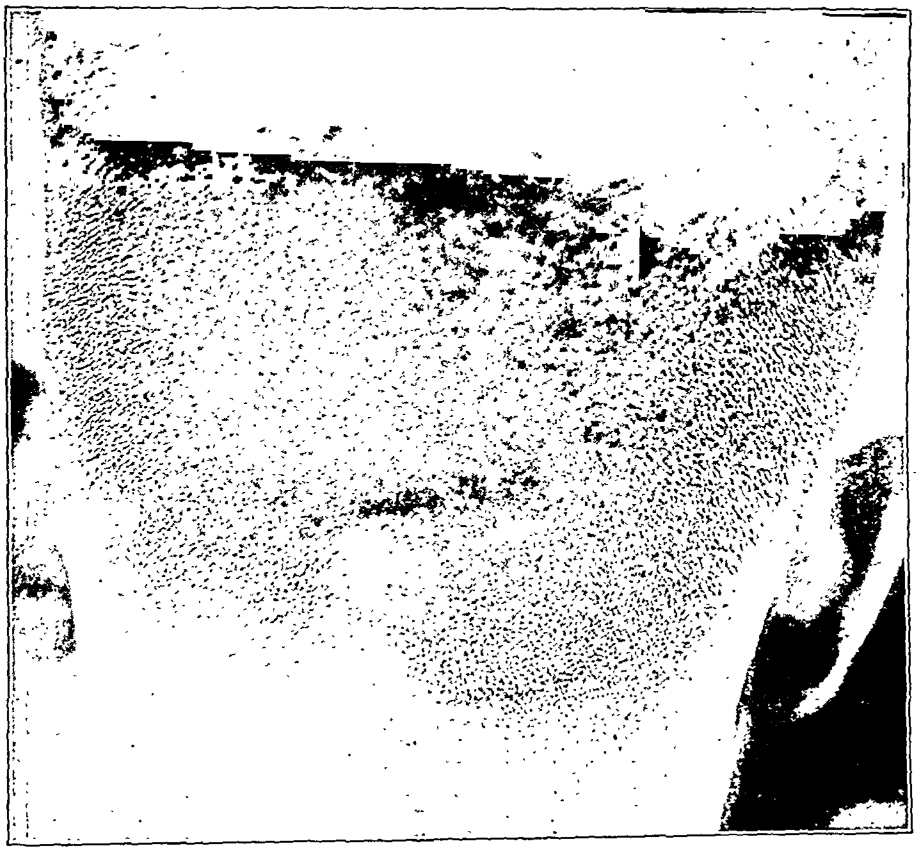

Fig. 4.—The lesion on the scalp.

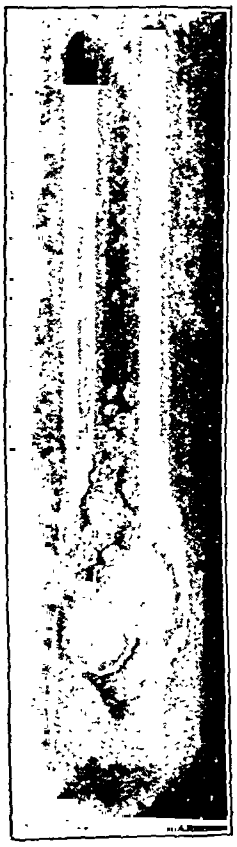

Fig. 5.—Culture of *Epidermophyton inguinale* from the scalp.

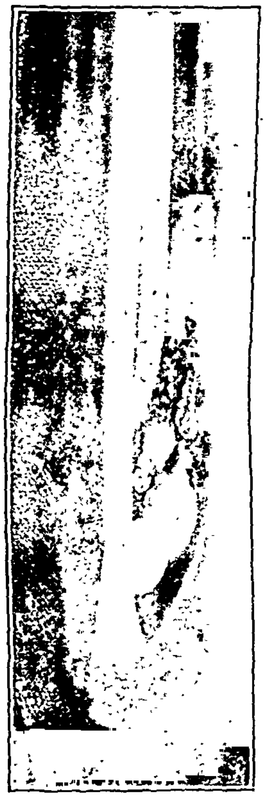

Fig. 6.—Culture of *Epidermiphyton inguinale* from the scalp.

Smears made from the cultures at about the third week showed the same organism observed in the scales from the lesions.

Hairs from the scalp lesion were examined in potassium hydroxid, but no organisms could be found.

Treatment.—The lesions were at first treated with Whitfield's ointment[2] with but little improvement. The patient was then given 3 per cent. pyrogallic acid for the scalp, pubic, crural, perineal and anal regions, and 3 per cent. chrysarobin for the remaining lesions. By May 22, 1917, the lesions had all disappeared.

COMMENT

Sabouraud[3] states that "it [the *Epidermophyton inguinale*] does not attack the hair; it requires the bottom of a flexure for its inoculation." The case described shows a lesion on the back of the scalp apparently autoinoculted from the extensive lesions elsewhere on the body. This location is not a flexure (except perhaps in very stout persons, and this patient is slender), so that it is apparent that at times inoculation may occur in places where there is no excess of heat and moisture.

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[2] Seven per cent. salicylic acid and 14 per cent. benzoic acid in white petrolatum (Whitfield: Brit. Jour. Dermat., 1911, **23**, 375).

[3] Sabouraud: Brit. Jour. Dermat., 1911, **23**, 385.

TREATED AND UNTREATED OSTEOCHONDRITIS JUVENILIS OF THE HIP*

WALLACE BLANCHARD, M.D.

Fellow of the American College of Surgeons

CHICAGO

Perthes' disease, or osteochondritis juvenilis of the hip, results in far more extensive bone atrophy than has been supposed. The bone atrophy and rarefication are so extensive that they have changed our previous conception of the pathology of the disease.

Up to the present time, the only joint and bone changes recognized in Perthes' disease have been a partial or total destruction of the head of the femur with a stumping of the neck, together with a thinning of the femoral shaft. Most authors have agreed with the unsustained suggestion, made by Freiberg[1] at the last session of this Association, that the disease is caused by tonsillitis or some other local infection. Experiments have been made on animals by Allison[2] to determine what influence a slight injury or displacement to the epiphysis might have on the hip, and his results were negative.

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* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Freiberg, A. H.: The Evolution of Osteochondritis Deformans Coxae Juvenilis, The Journal A. M. A., Aug. 26, 1916, p. 658.

[2] Allison, Nathaniel: Am. Jour. Orthop. Surg., October, 1915.

Since I desired to make a comparative study of diseased and normal hips, I had roentgenograms taken of cases of Perthes' disease, to include all of the pelvis as well as both the femoral shafts on single large plates. In these comprehensive pictures, I soon discovered decreased bone density and some atrophy of the pelvis on the diseased side in the acute cases.

The bone atrophy and lessened density are of about the same degree in the ilium, ischium and pubic bone as in the shaft of the femur. The atrophy of the ischium and pubic bone usually reduces the obturator foramen to one-half the size of the opposite foramen, as is well shown in Figure 4. On examining roentgenograms of both legs in one picture, it soon became apparent that all the bones of the leg suffered moderate atrophic changes. Decreased density is also seen in all the surrounding muscles and other soft parts.

The shrinking of the head of the femur leaves a vacant space in the acetabulum which shows principally adaptive changes.

Atrophy of bones and muscles is one of the first symptoms, and is as equally constant in the functionally used diseased leg as in the unused diseased leg. The atrophy becomes less as the distance increases from the hip.

Early and continued mechanical treatment that protects the head of the femur from weight-bearing, jar and concussion will usually preserve the head in its rounded shape; but observation of a number of treated and untreated cases shows that the best available mechanical treatment has little or no effect in either preventing or causing atrophy of the bones and muscles of the leg of the diseased side.

I have not been able to locate a tonsillar or other source of infection in a single case.

The moderate but extensive atrophy and decreased density of bone and adjacent tissues precludes the possibility of the disease being due to a circumscribed joint infection or an epiphyseal injury. The disease is undoubtedly trophic in character and is probably caused by an extensively disturbed blood circulation that impairs nutrition from a median pelvic line to the foot.

It is unfortunate that this rather recently discovered disease of the hip joint has been differentiated from tuberculous hip disease, with which it has been so long confused, if the treatment is to be neglected because it runs a milder course and with much less resulting deformity.

Patients who have had Perthes' disease which has been diagnosed as tuberculous hip disease, and who have promptly received the best mechanical and general treatment usually accorded to tuberculous hips, have invariably made the best possible recoveries.

The neglected and untreated cases of Perthes' disease after one or two years show the heads of the femurs to be nearly destroyed, with the necks stunted, and in coxa vara or coxa valga positions. Abduction is partly lost, and movements of the hips in other directions are slightly limited. The legs are from 1 to 3 cm. short, and the patients walk with a limp.

The friction and concussion of weight-bearing on softened bone cause the erosion of the head and the stunting of the neck of the femur. The disease is self-limited. The extensive bone atrophy, together with the obliteration of the head of the femur, runs its course in about one year, and this is followed by a longer period of bone hardening and rebuilding. One proof of this limited course is that if the head of the femur is protected from the outset of the disease by adequate mechanical treatment so that it retains its rounded shape for two years, it again becomes hard, firm and self-protecting.

Roentgenograms show a decreased density of bone in the first year of the disease, and during the second and third years the deepened shadows indicate that the diseased bones have become harder and more dense than normal bones. This hardening resembles the eburnation of soft bones after rickets, in which they frequently become as hard and firm in a child of 5 years as in a man of 25.

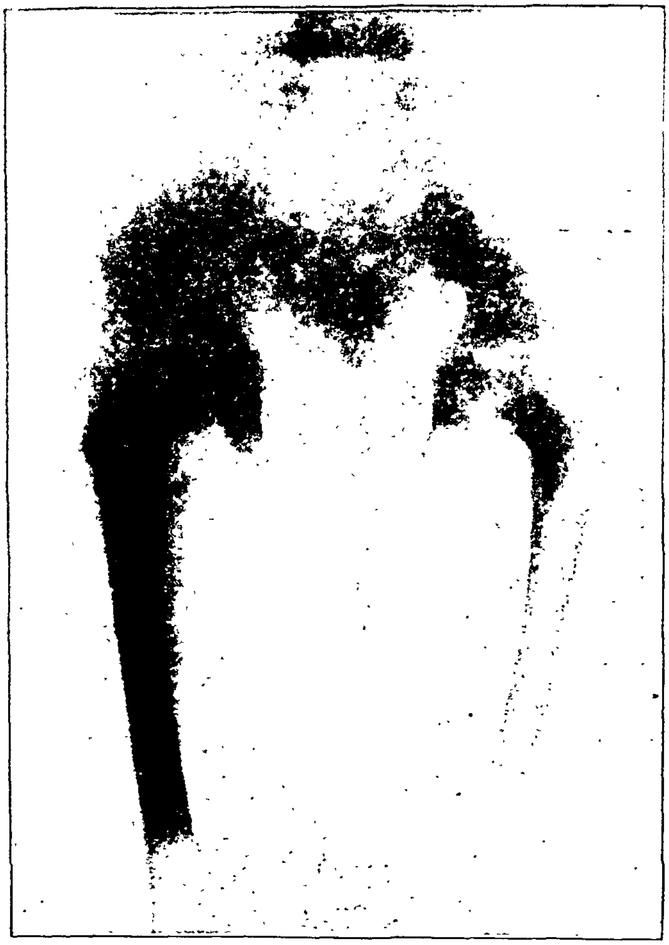

Fig. 1 (Case 1).—Atrophy and greatly reduced density of the pelvic bones, femur and muscles of the diseased side in acute Perthes' disease in a boy, aged 5 years.

There is perhaps no destructive joint lesion that is quite as amenable to treatment as Perthes' disease. The promptness with which the head of the femur rebuilds under mechanical protection is quite surprising.

If an adequate protective mechanical treatment is commenced even late in the course of the disease, when the head of the femur has been destroyed, and the treatment is then continued for a year or two, the head of the femur will regenerate to nearly its full rounded shape, in the same manner that the head of the femur rebuilds for several years after the reduction of a congenital hip dislocation, with the result that the ultimate shortening will be lessened fully a half. The limp is relieved in proportion to the regeneration of the head of the femur.

This rebuilding is a further proof that Perthes' disease is not an infective epiphysitis, since after the head of the femur has been destroyed by an epiphysitis, it does not regenerate.

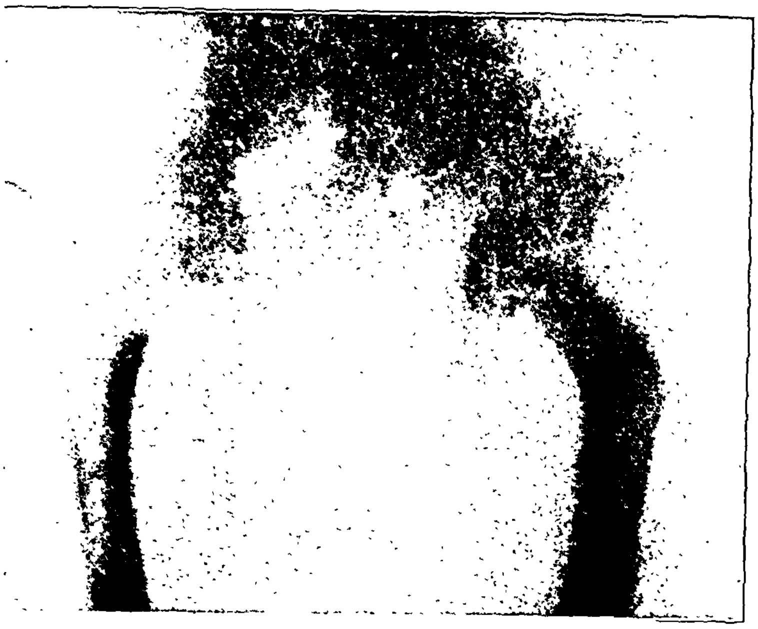

Fig. 2 (Case 2).—Reduction of the head of the femur to a small pyramid of bone in E. M., a girl, aged 8, who had had Perthes' disease for one year; the leg is 2 cm. short; the patient walks with a limp.

Roentgenograms of untreated cases of Perthes' disease, taken from seven to eight years after the disease has run its course leaving only remnants of a head or a stunted neck, show that unaided Nature has been partly successful in rebuilding the head to its normal shape.

In Perthes' disease, lengthening of the leg rarely happens, but I have one case to report.

A. H., a boy, aged 6 years, has had pain in his hip, and walked for one year with the left leg abducted. The roentgenogram (Fig. 5) shows the usual atrophic changes. The abduction leverage on the softened neck and shaft of the femur during the one year of acute disease has straightened the normal outcurve of the shaft and elevated the neck about 35 degrees, causing a 4 cm. lengthening of the left leg. The abduction protected the head of the femur, which shows only atrophic changes. The hardening stage is somewhat advanced, and nothing but an osteotomy at the neck can restore the normal relations. The boy walks with a limp to the right.

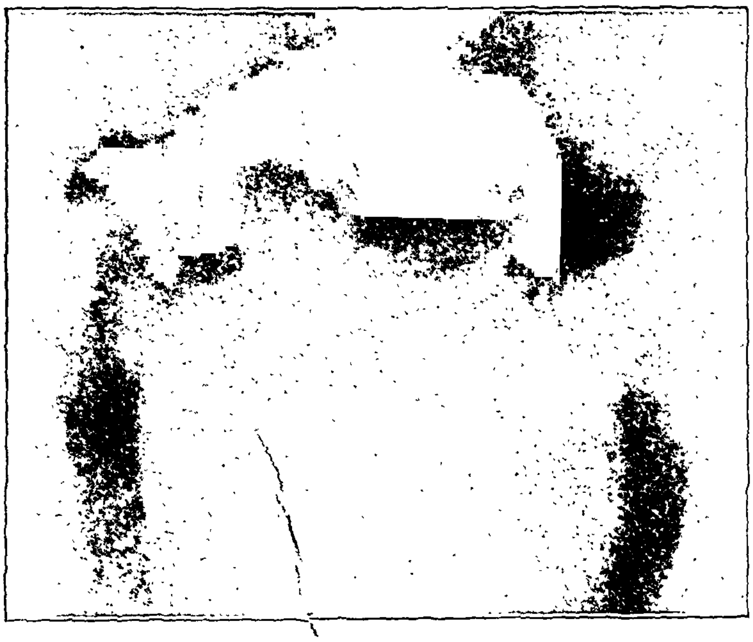

Fig. 3 (Case 2).—Regenerated head of the femur in E. M. at the age of 15 years; the patient had mechanical treatment during the second year of the disease, and walks without a limp.

In marked contrast to the depression seen in tuberculous hip disease, patients with Perthes' disease usually retain the irrepressible spirits of healthy childhood.

In going over thirty years of hospital and private histories of tuberculous hip disease, I have been able to cull out over forty cases of undoubted Perthes' disease in which the patients were treated as having tuberculous hips and discharged cured with results too suspiciously good to have been obtained in tuberculous cases. In a number of these cases, the roentgenograms confirm the late diagnosis of Perthes' disease. It is a consolation to know that even if the diagnosis was incorrect the patient received the best possible treatment.

The condition is not likely to be confused with any other than tuberculous hip disease. The patient is usually from 4 to 10 years of age, walks with a slight limp, and complains of occasional pain. There is always some atrophy of the thigh and less of the leg. Abduction is limited, but movements in all other directions are free. These symptoms closely resemble the symptoms of an insidiously advancing tuberculosis of the hip joint, but the roentgenogram will usually decide. If it is too early for pathologic conditions to show decisively in the roentgenogram, one should be taken a month or several months later, but the mechanical treatment should be begun immediately, since in either condition the treatment will be the same, and the treatment cannot be commenced too early. With the hip joint well protected, constant exercise in the open air and a liberal raw food diet seem to be of greatest service in the treatment of Perthes' disease.

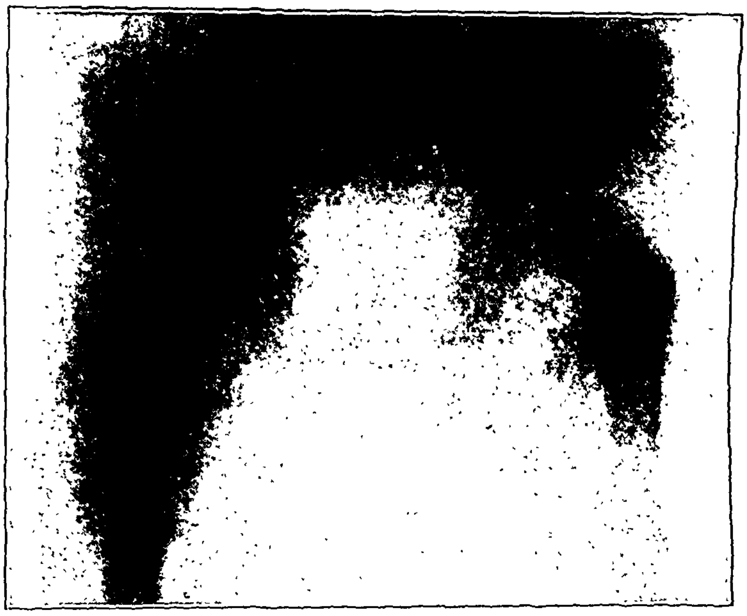

Fig. 4 (Case 3).—Head of the femur, in which only two small buttons are left, in an untreated case of Perthes' disease in a girl, aged 8 years; the leg is 2.5 cm. short, and the patient walks with a limp.

Every orthopedic surgeon is familiar with the plaster-of-Paris spica and with a variety of hip splints that afford good protection to the head of the femur, and I present the accompanying pictures of patients with Perthes' disease, the one in a plaster-of-Paris spica and the other in my strap iron hip splint with high shoe and crutches, only to emphasize the necessity of very complete protection to the hip joint in order to get the best possible ultimate results.

CONCLUSIONS

1. Osteochondritis deformans juvenilis seems to be a nutritional disease of the bones and muscles of the hip and leg.

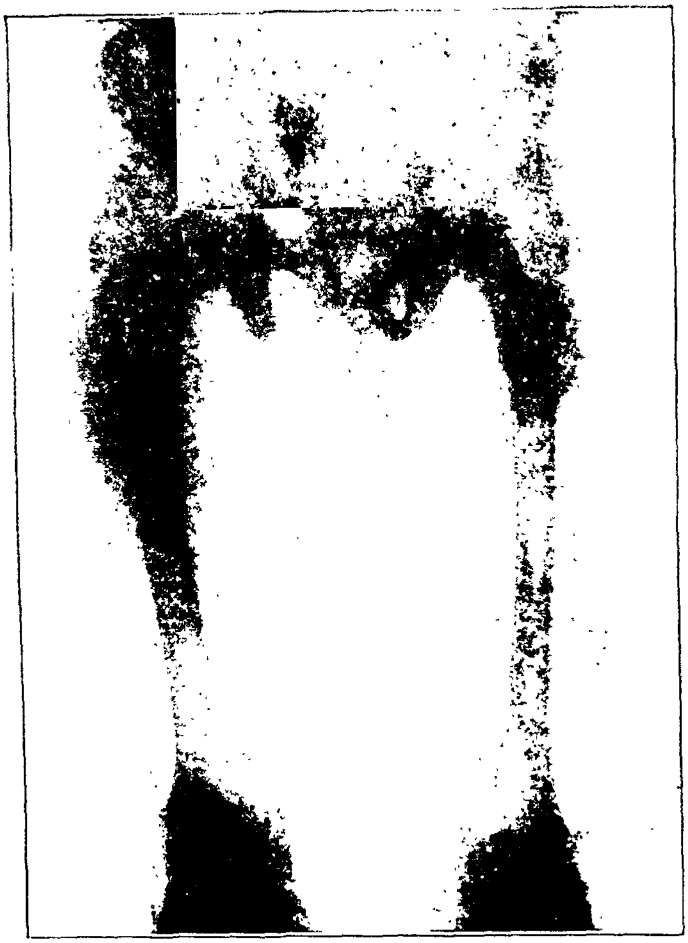

Fig. 5 (Case 4).—Lengthening of the leg in Perthes' disease, a rare resulting deformity, in a boy, aged 6.

2. The femoral head that continues in functional use during the acute stage of the disease becomes obliterated wholly or in part by the attrition of weight-bearing on softened bone.

3. The head of the femur that is mechanically protected throughout the acute stage of the disease suffers only the same atrophic changes as the adjacent bones.

4. In convalescence, the destroyed head redevelops rapidly under mechanical protection, and redevelops more slowly and less perfectly without protection.

5. The disease progresses with one year of bone and muscle atrophy and lessened density followed by several years of increasing density and redevelopment.

6. The bone hardening resembles the eburnation after rickets.

7. From the foregoing facts it may be inferred that this disease of growing bone is nutritional character, and is due to a blood circulation that is disturbed from a median pelvic line to the foot, and that the head and neck of the femur are only incidentally affected.

8. The question of etiology remains of chief interest.

15 East Washington Street.

ABSTRACT OF DISCUSSION

Dr. John Joseph Nutt, New York: Although the author of the paper said that the etiologic factors are of the most interest, it seems to me that it is of more practical interest to decide on the best method of treatment. A great many advocate treating these patients not at all; some advocate treating them slightly; and some advocate treating them much more thoroughly. If we treat them too slightly and neglect them, I think we will have worse results than by making mistakes in diagnosis and treating them as tuberculous hips.

One point that I have never thought of before is that as the head becomes flattened and lessened, the line formed by the lower edge of the shadow of the neck does not quite fall in line with the line showing the upper border of the obturator foramen.

Dr. Percy W. Roberts, New York: I merely wish to ask Dr. Blanchard what, in his experience, have been the acute symptoms; or, perhaps, to put it differently, in what proportion of cases has he seen such symptoms as pain and spasm?

Dr. Frederick J. Gaenslen, Milwaukee, Wis.: I want to emphasize what I consider a very important point made by Dr. Blanchard. The tendency has been to let these patients go on about as they pleased, feeling that ultimate recovery, with but slight deformity, would result. I think he has sounded an important note of warning in advising against this, and I endorse his recommendation of judicious supportive treatment.

I wonder whether Dr. Blanchard did not make a mistake in referring to Dr. Freiberg as having written a paper on the infectious origin of osteochondritis. I think it was Dr. Kidner.

I became much interested in this condition when Calvé, in 1912, at Berc-sur-mer, showed me some cases of what we now know as Perthes' disease, which he described as pseudocoxalgia. When I visited Perthes at Tübingen in the same summer he showed me examples of the same group of cases. I told him at that time that it corresponded exactly to the type of cases that Calvé had shown me. He was much interested, and I let him have the reprint that Calvé had given me. At first he thought the cases were not the same; but later changed his opinion, and regarded them as identical. If we want to add another name to the already hyphenated appellation of the disease, I think the name of Calvé should find a place in it.

Dr. Samuel C. Baldwin, Salt Lake City: I did not hear Dr. Blanchard say anything about the symptoms, or whether in his cases he found much pain. Last year, at the clinical meeting of the American Orthopedic Association at Philadelphia, Dr. James K. Young showed roentgenograms of several cases in which there had been a great deal of destruction of the bone. I have had one very interesting case recently, which illustrated what Dr. Blanchard has said about these cases having been treated for tuberculous hip disease, years back, when they were real cases of Perthes' disease.

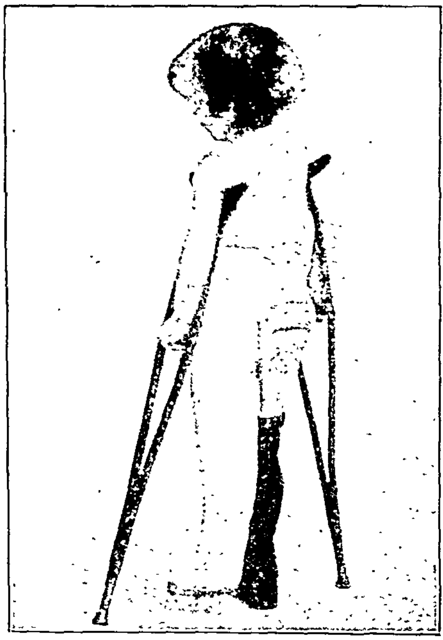

Fig. 6 (Case 5).—A girl, aged 5 years, with Perthes' disease, in a plaster-of-Paris spica with high shoe and crutches.

About fifteen years ago, I had a boy whom I treated for hip disease. Last summer his sister was brought to me with a condition that looked exactly like Perthes' disease of the

This rebuilding is a further proof that Perthes' disease is not an infective epiphysitis, since after the head of the femur has been destroyed by an epiphysitis, it does not regenerate.

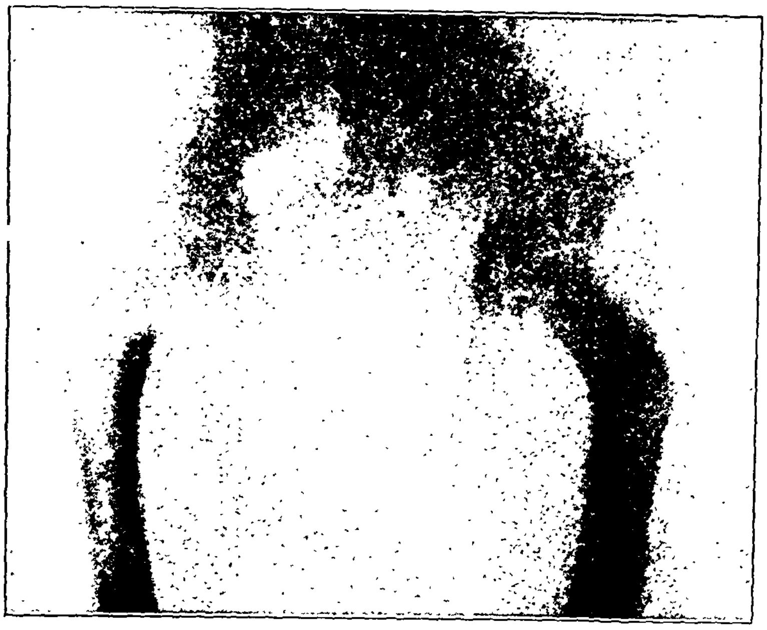

Fig. 2 (Case 2).—Reduction of the head of the femur to a small pyramid of bone in E. M., a girl, aged 8, who had had Perthes' disease for one year; the leg is 2 cm. short; the patient walks with a limp.

Roentgenograms of untreated cases of Perthes' disease, taken from seven to eight years after the disease has run its course leaving only remnants of a head or a stunted neck, show that unaided Nature has been partly successful in rebuilding the head to its normal shape.

In Perthes' disease, lengthening of the leg rarely happens, but I have one case to report.

A. H., a boy, aged 6 years, has had pain in his hip, and walked for one year with the left leg abducted. The roentgenogram (Fig. 5) shows the usual atrophic changes. The abduction leverage on the softened neck and shaft of the femur during the one year of acute disease has straightened the normal outcurve of the shaft and elevated the neck about 35 degrees, causing a 4 cm. lengthening of the left leg. The abduction protected the head of the femur, which shows only atrophic changes. The hardening stage is somewhat advanced, and nothing but an osteotomy at the neck can restore the normal relations. The boy walks with a limp to the right.

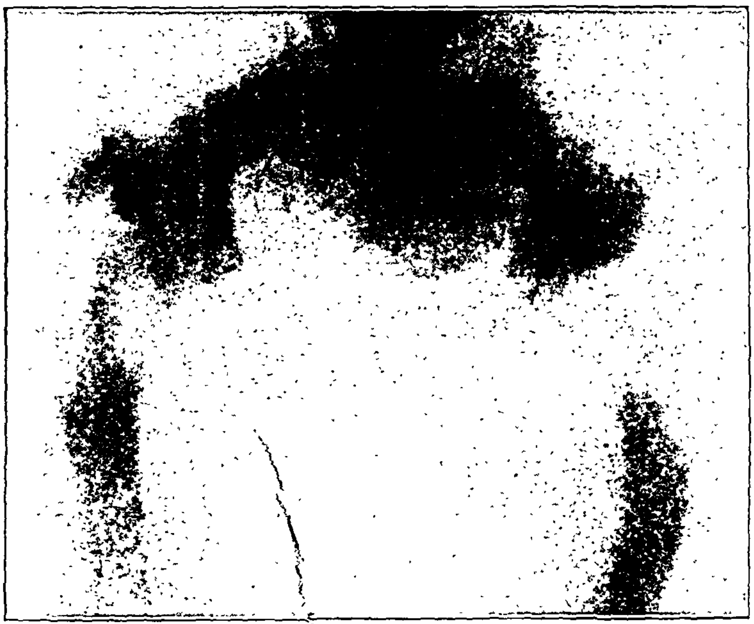

Fig. 3 (Case 2).—Regenerated head of the femur in E. M. at the age of 15 years; the patient had mechanical treatment during the second year of the disease, and walks without a limp.

In marked contrast to the depression seen in tuberculous, hip disease, patients with Perthes' disease usually retain the irrepressible spirits of healthy childhood.

In going over thirty years of hospital and private histories of tuberculous hip disease, I have been able to cull out over forty cases of undoubted Perthes' disease in which the patients were treated as having tuberculous hips and discharged cured with results too suspiciously good to have been obtained in tuberculous cases. In a number of these cases, the roentgenograms confirm the late diagnosis of Perthes' disease. It is a consolation to know that even if the diagnosis was incorrect the patient received the best possible treatment.

The condition is not likely to be confused with any other than tuberculous hip disease. The patient is usually from 4 to 10 years of age, walks with a slight limp, and complains of occasional pain. There is always some atrophy of the thigh and less of the leg. Abduction is limited, but movements in all other directions are free. These symptoms closely resemble the symptoms of an insidiously advancing tuberculosis of the hip joint, but the roentgenogram will usually decide. If it is too early for pathologic conditions to show decisively in the roentgenogram, one should be taken a month or several months later, but the mechanical treatment should be begun immediately, since in either condition the treatment will be the same, and the treatment cannot be commenced too early. With the hip joint well protected, constant exercise in the open air and a liberal raw food diet seem to be of greatest service in the treatment of Perthes' disease.

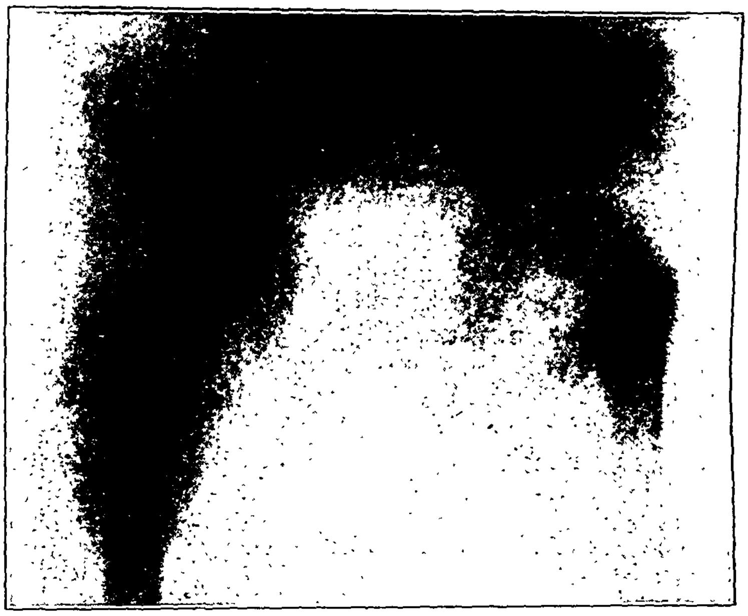

Fig. 4 (Case 3).—Head of the femur, in which only two small buttons are left, in an untreated case of Perthes' disease in a girl, aged 8 years; the leg is 2.5 cm. short, and the patient walks with a limp.

Every orthopedic surgeon is familiar with the plaster-of-Paris spica and with a variety of hip splints that afford good protection to the head of the femur, and I present the accompanying pictures of patients with Perthes' disease, the one in a plaster-of-Paris spica and the other in my strap iron hip splint with high shoe and crutches, only to emphasize the necessity of very complete protection to the hip joint in order to get the best possible ultimate results.

Magendie,[2] Luschka,[3] Falkenheim and Naunyn,[4] Sicard,[5] Meek,[6] Mestrezat,[7] Cathelin[8] and others ought, however, to leave no doubt on the question. Cushing[9] accepts as true that the choroid plexus is the chief source of supply, but states that "this has not been conclusively proved." The ependyma cells probably add a small quantity of liquid.

How and where does this secretion leave the subarachnoid space? The responses to this question are less satisfactory than are those respecting its formation. The once much discussed pacchionian theory is not tenable. It has been held that the fluid escapes along the cranial and spinal nerve roots and blood vessels, all of which have projections from the leptomeninges. Weed[10] states that fluid escapes by way of the villi in the subarachnoid space and thence into the lymph and venous channels.

The cerebrospinal fluid differs from all other human secretions. It is conclusively not a transudate. It is not lymph. The secretion resembles rather closely the fluids found within the eyeball and the internal auditory organs.

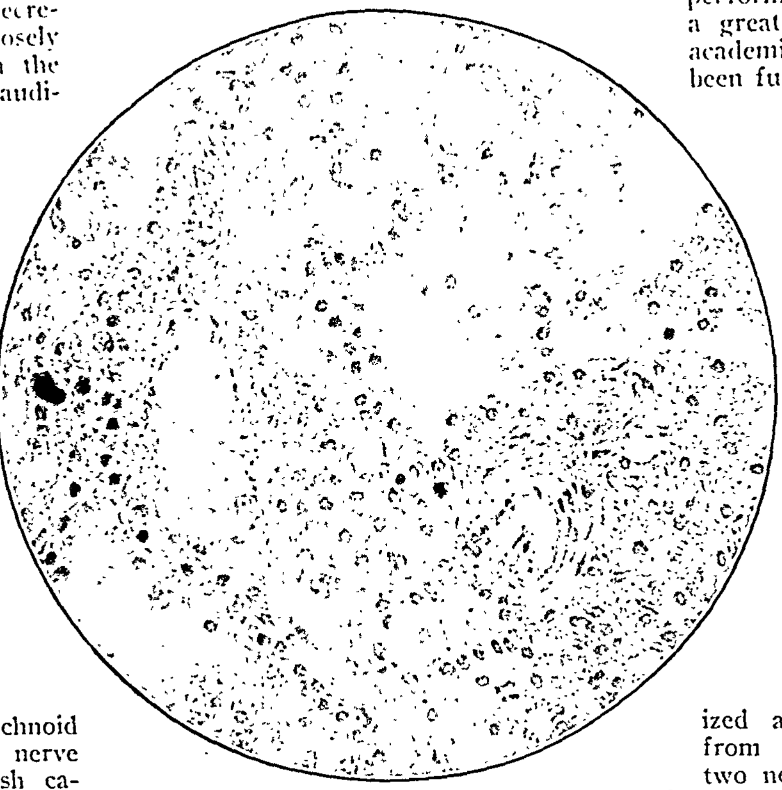

Fig. 2.—High power magnification of an area of choroid plexus gland in case reported, showing normal and pathologic choroid cells.

Is there a circulation? There does not seem to be any clearly systematic and continuous flow of the spinal fluid from one area of the ventricle or subarachnoid space to another. However, ample proof is at hand to show that there are movements. Sicard and Cestan[11] injected India ink into the subarachnoid space in the atlanto-occipital region, and found a rather rapid distribution of the carbon particles in the culdesacs, the subarachnoid areas and around the nerve roots. Dogs and fresh cadavers were used for these experiments. Later others have demonstrated a circulation of the fluid with movements directed caudad and cephalad. I am inclined to look on these movements, which constitute the circulation, as coming from transmitted energy having its source in the cardiac and respiratory acts. Oscillations from both can be seen at every normal spinal puncture. Luschka demonstrated a lining of cilia on the projecting surface of the ependyma cells. Others have described a similar structure. These cilia may be a factor in the circulation.

Quincke,[12] in 1872, while working in a physiologic laboratory, reported some experimental cerebrospinal fluid work on animals with reference to pressure. Nineteen years later Quincke[13] published reports on the first lumbar punctures performed in pathologic human cases, which included thirty adults and twelve children. A description of his manometer appears. This consists of a needle with its mandarin, rubber connector, a glass tube and a measuring stick with millimeter graduations. For some years following Quincke's reports there was a slow addition to our experimental knowledge and a comparatively small number of lumbar punctures performed for diagnostic and therapeutic purposes. During the past ten years, a rapid increment in the number of lumbar punctures performed has been noted, and a greatly increased fund of academic and clinical data has been furnished us along physical, chemical and biologic lines.

A number of manometers have been presented to the profession, mostly for water readings. The few mercury apparatus are not as practical. The water readings may be converted into mercury by dividing with 13.6. The two-way and three-way needles are convenient, but they rust and early give trouble.

I use an apparatus[14] of my own design (Fig. 1). It is simple, easily sterilized and readily kept free from rust. It consists of two needles of different size and strength, a short rubber connector and glass manometer tubes. The stylet should be withdrawn from the needle before puncturing. First one connects the first glass manometer tube into the connector (*c* and *d*). Then, the flow being established, the connector is immediately applied (*c* into *b*). If the pressure is abnormally high, the other glass tubes which have ground ends may be used to make a longer vertical column. They have millimeter graduations. The outer end of the needle (*b*) is ground so that a syringe of Lüer type can be adapted. The rapidity of flow can be controlled by the stylet. When the flow comes from the needle in a stream or dropping rapidly, it should be checked partially with the stylet. When fluid is drained off too rapidily, there is more danger of postoperative headaches or disagreeable head symptoms, which often continue for some days. In intracranial lesions with greatly increased pressures, especially tumors located in the posterior fossa, too sudden withdrawal of the spinal fluid might produce alarming symptoms. The literature contains reports of a few deaths resulting from lumbar punctures performed on patients having a tumor in the posterior cranial fossa.

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[2] Magendie: Mémoire sur un liquide qui se trouve dans le crâne et la colonne vertebrale de l'homme et des animaux mammifères, Mémoire 2, Jour. de physiol. exper., January, 1827, **7**.

[3] Luschka: Die Adergeflechte des menschlichen Gehirns, Berlin, 1855.

[4] Falkenheim and Naunyn: Ueber Hirndruck, Arch. f. exper. Path. u. Pharmakol., 1887, **22**, 261.

[5] Sicard: Le liquide céphalo-rachidien, Paris, 1902.

[6] Meek: A Study of the Choroid Plexus, Jour. Comp. Neurol. and Psychol., 1907, **17**, 286.

[7] Mestrezat: Le liquide cêphalo-rachidien, Paris, 1912, p. 76.

[8] Cathelin: La circulation du liquide céphalo-rachidien, Paris, 1912.

[9] Cushing: Studies on the Cerebrospinal Fluid, Jour. Med. Research, 1914, **31**, 1.

[10] Weed: Studies on the Cerebrospinal Fluid, Jour. Med. Research, 1914, **31**, 21.

[11] Sicard and Cestan: Bull. et mém. Soc. méd. d. hôp. de Paris, 1904, **6**, 715.

[12] Quincke: Zur Physiologie der Cerebrospinalflüssigkeit, Arch. f. Anat. u. Physiol., 1872.

[13] Quincke: Die Lumbalpunktion des Hydrocephalus, Berl. klin. Wchnschr., 1891, **9**, No. 38.

[14] Obtained from the Physicians' Supply Co., Kansas City, Mo.

It might be contended that a manometer for accurately measuring the spinal fluid pressure is not necessary for practical purposes. I cannot agree to such a contention if careful spinal fluid work is to be considered. Recorded figures for pressure have much diagnostic value for a number of organic diseases within the cranial and spinal cavities. The number of drops per minute, or stream volume, can furnish only a very crude estimate of the pressure. Often, too, such a method leads to gross error. A cauda equina root in the lumbosacral cistern, or arachnoid tissue, might almost stop the flow; but if a manometer be applied, a pressure of several hundred millimeters will be found. The medulla may be pressed down into the foramen magnum, allowing only a small number of drops per minute, while if the manometer is used a high pressure reading might be obtained. When the spinal fluid is removed simply for therapeutic reasons, it is important to take a reading from time to time during the puncture.

The normal spinal fluid pressure as measured by a manometer at the lumbar region is subject to variations. The reason for some of these variations has not been explained satisfactorily.

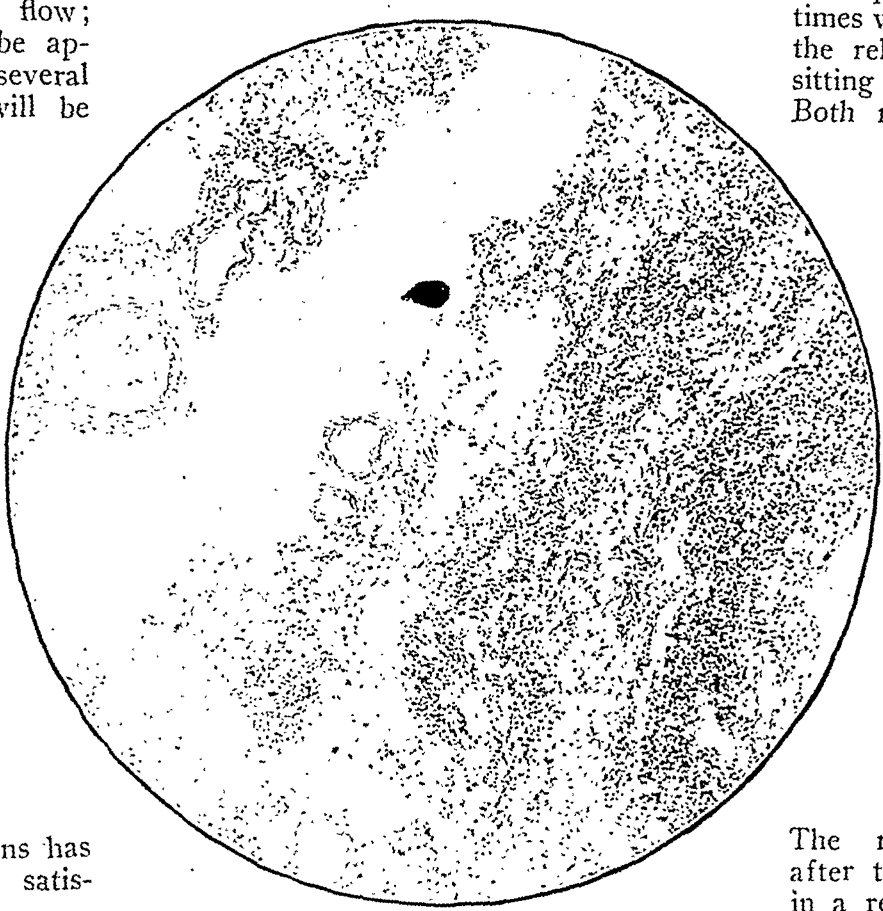

Fig. 3.—Low power magnification of an area of choroid plexus gland in case reported. The villi and choroid cells have been destroyed completely. Some vascular infiltration is seen. Massive round cell infiltrations are much in evidence.

I find that the normal pressure in the normal person taken in the sitting posture with head bent forward ranges from 90 to 150 mm. of water. In searching the literature we find a wide range of differences for the normal pressure. There is evidence in some reports that pathologic cases were used to find so-called normal pressures. As far as possible, especially if one is not doing frequent lumbar punctures, the patient should be placed always in about the same posture.

Whether the head is bent forward or held erect occasionally influences the reading a few millimeters. Cardiac and respiratory oscillations are always observed, the latter being greater than the first and ranging from 10 to 20 mm. Coughing and physical strains may produce a sharp increase in the pressure.

Why do we have this subarachnoid pressure, and whence is the energy derived? Hydrostatic pressure accounts for possibly a small portion. The blood vessels and transmitted heart muscle energy cannot account directly for it; at least only slightly. High blood pressure does not cause an increased cerebrospinal fluid pressure. The elasticity of the leptomeningeal tissues seems to account for a portion. Closely associated with this is capillarity. The choroid plexus gland, or its secretion, is responsible for the largest percentage of the pressure. In most of the places the subarachnoid cavity has walls comparatively closely coapted. Pfaundler[15] names the following four component factors in normal cerebrospinal pressure: (1) *compression pressure, contained within the fluid itself*; (2) hydrostatic pressure; (3) pressure transmitted from the blood, and (4) *elastic pressure, deriving its energy from the elastic subarachnoid walls.* The last seems to be the most important. The portion described by Pfaundler as compression pressure should not be considered separately. It is a result of the other three.

I have performed lumbar punctures a number of times with a view to obtaining the relative pressures in the sitting and reclining postures. Both normal and pathologic material has been used. After the pressure has been read in the sitting posture, the patient is placed in a reclining position, leaving the head on a level with the point of entrance of the needle, which has remained in the canal during the change of posture. In the majority of cases the pressure remained about the same both for the normal and pathologic cases. In one case of chronic serous meningitis, the pressure at the start was 270 mm. of water in a sitting posture. The registration was 190 after the patient was placed in a reclining position. The pressure returned promptly to 270 when the patient was restored to the initial sitting posture.

A great number of pathologic states involving the brain, spinal cord, and their membranes will produce alterations of tension of the subarachnoid fluid. States with increased pressure exceed tremendously those with decreased pressure.

In my experience, brain tumor cases have furnished the highest pressures, often registering from 620 to 700 mm. and more. There have been reported pressures reaching 1,000 mm., but these are rarely encountered. Much caution should be exercised in lowering the pressure when high figures are registered.

Tuberculous meningitis gives an exceptionally high pressure, but does not reach that of the tumors. All forms of syphilis of the central nervous system, including tabes and general paresis, furnish high pressures ranging from 250 to 400 mm. Paresis and secondary or tertiary meningitis supply the higher figures.

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[15] Pflaundler: Ueber Lumbalpunktionen an Kindern, Jahrb. f. Kinderh., 1899, 49, 264.

Hydrocephalus, if the intracranial pressure has not prevented an outflow, causes a greatly increased spinal fluid tension. In a number of the chronic degenerative neural diseases there are moderately increased pressures.

All the acute meningitis cases will show a sharp rise in the spinal fluid pressure. Acute poliomyelitis, rabies, tetanus, several intoxications and alcoholic delirium furnish somewhat increased pressures, usually about 200 to 300 mm.

Head traumas and particularly brain hemorrhages will provoke a considerable increase in the spinal pressure.

The most frequent causes for real, pathologically low pressures are inflammations of the spinal cord preventing patency of the subarachnoid space and the flow of fluid to the lumbosacral cistern. A spinal cord neoplasm or cyst may cause a similar condition. When a tumor of sufficient size is pressing on the cord, the manometer may show only a few millimeters' pressure (about 20 to 40 mm.). After the removal of from 1 to 5 c.c. of the spinal fluid by lumbar puncture, this low pressure promptly drops to nil.

The following is an abstract of a case report with low pressure:

> A man, aged 57, concerning whose family and personal history no data were obtainable, but who was admittedly an alcoholic, complained of weakness, headache and a general decline. There was much mental torpor. The pupils were sluggish to light and irregular. All deep reflexes were mildly increased.
>
> A necropsy held twelve hours after death revealed changes of a specific nature throughout the cardiovascular system. The dura was much adherent to the leptomeninges. The pia-arachnoid was denser than normal and had numerous whitish plaques scattered about.
>
> The brain was rather wet. The choroid plexus could be traced through all the ventricles, but everywhere was more or less excessively adherent. The villi could not be separated, as can be done in the normal brain. The choroid cells were, to a great extent, completely destroyed. In some large areas not a single cell was visible. Among the villi best preserved there could always be found some cells degenerated, or even destroyed. In case all the cells had been destroyed, there remained stubs of villi, and more or less agglutinated masses. These masses contained dense connective or cicatricial tissue.
>
> Specific infiltrations with large masses of round cells were nicely illustrated. These gummatous masses were irregularly distributed, but were most numerous and largest in the areas in which the destructive process was more complete.
>
> The arteries, especially the smaller arterioles, frequently had thickened walls. Often the walls were considerably thicker in one area of the vessel than in another.

Rachiocentesis is customarily performed at the third or fourth lumbar spaces, hence the term "lumbar puncture." However, there are a few instances in which it can be performed to greater advantage in one of the dorsal or cervical spaces. As an illustration, in a case of tetanus I have successfully injected antitoxin into the subarachnoid space between the upper dorsal vertebrae. The lumbar region was so arched and rigid that no needle could enter its spaces. Also when a transverse cord lesion exists I have employed dorsal and cervical punctures in order to demonstrate the difference in pressure in the lumbar region and in the region above, which contained a tumor, cyst or other possible compressing material. The fluid collected from above and below certain lesions has often physical and chemical differences of much diagnostic significance.

SUMMARY

The abstracted case report contained herewith demonstrates that impaired function or destruction of the choroid plexus gives a diminished quantity of cerebrospinal fluid and a lowered pressure, as shown by rachiocentesis. This supports the contention that at least the bulk of the cerebrospinal fluid is secreted by the choroid plexus cells.

There exists a definite spinal fluid pressure which has certain variations according to various observations. A minimum figure can be placed at 90 and a maximum at 150 mm. (water manometer). When pathologic states exist, high pressures greatly preponderate. It is more difficult to be assured of the reality of a low pressure, but its presence has much diagnostic weight.

Accurate registration of the subarachnoid fluid tension within the entire craniospinal cavity should be more generally recorded, for comparative pressures have a great deal of diagnostic value in many neurologic diseases.

ABSTRACT OF DISCUSSION

Dr. William M. Leszynsky, New York: I should like to introduce a word of caution in regard to the possible breaking of the needle in lumbar puncture, which has occurred in many instances. The ordinary steel needle should not be used. Lately a needle has been made according to my suggestion, called a nickeloid needle, which is noncorrosive and can be bent at a right angle, so that under ordinary usage breakage is practically impossible.

Dr. A. L. Skoog, Kansas City, Mo.: I broke one needle in puncturing the skin. When I started doing lumbar punctures I experimented on cadavers. I broke one needle on the cadaver. It was an iridium-platinum needle, and I have never used one since. All the needles which I use are tested at intervals. It is wise to be careful with the needles. It is important to know the pressure of the cerebrospinal fluid, and one cannot always tell this by the rapidity of the dropping. If there is a greatly increased pressure patients are more likely to have severe headaches. I would give a word of warning about suddenly reducing a very high pressure of the cerebrospinal fluid to normal; for instance, in the case of tumor in the posterior fossa. One must be very careful. A number of deaths have resulted from sudden reduction of tension in tumors of the cerebellum and that region.

Common Colds.—The phrase "common colds," like "charity," covers a multitude of sanitary sins, and curiously enough the name has been applied to a group of affections which, far from depending absolutely on cold, are frequently the direct result of living in close, overheated surroundings having a lower relative humidity than the driest desert known to man. The word "colds" means an acute infection of the lining membranes of the nose, tonsils, throat, and larger bronchial tubes. The process may be even more extensive and amount to a general infection of the entire body. All of the breathing apparatus, excepting the smaller terminal portions in the lungs, may be involved, and as a matter of fact the disease may, and often does, spread to these, thus producing pneumonia. In this connection it may be pointed out that pneumonia kills more people in the United States than any other disease excepting tuberculosis and heart disease. Many pneumonias begin as a common cold. Colds do not produce tuberculosis, yet unfortunately what is considered as a cold may be in reality the first symptoms of the white plague. In every case, however, colds are dependent on the growth and activity of living germs which are received from other persons.—Rucker, *Pub. Health Rep.*

tissue containing occasional nests of tumor cells. The peritoneal nodules were composed of dense connective tissue, with occasional minute groups of tumor cells. The amount of connective tissue in these peritoneal nodules of carcinoma was entirely out of proportion to the number of carcinoma cells present. On the other hand, the peritoneal endothelium of the sections of the wall of the small intestine adjacent to the plaques was normal and showed no connective tissue formation.

The source of the new connective tissue formed under the influence of the radium and Roentgen rays must be looked for either in the stroma of the tumor or in the round cell infiltration that closely follows the destruction of the tumor cells by the radiations. It may be stated then that while the destruction of the tumor cells is the primary phase and the formation of new sclerotic connective tissue a secondary, it is at least as important a phase in the morphologic changes which take place in malignant tumors under the influence of radium and Roentgen rays. Furthermore, the microscopic study of this case of carcinoma of the sigmoid indicates the possibility that the proliferating capacity and the consequent clinical malignancy of a tumor may be inhibited under the influence of the radiations without the presence of any apparent morphologic changes in the tumor tissue. The deeper portions of the sigmoid tumor, as well as a certain number of the peritoneal plaques, showed morphologically unchanged carcinoma cells. Nevertheless, in over six months not a single one of the minute nodules found at the operation developed into a discrete secondary tumor, and the primary sigmoid tumor did not increase in size during the time.

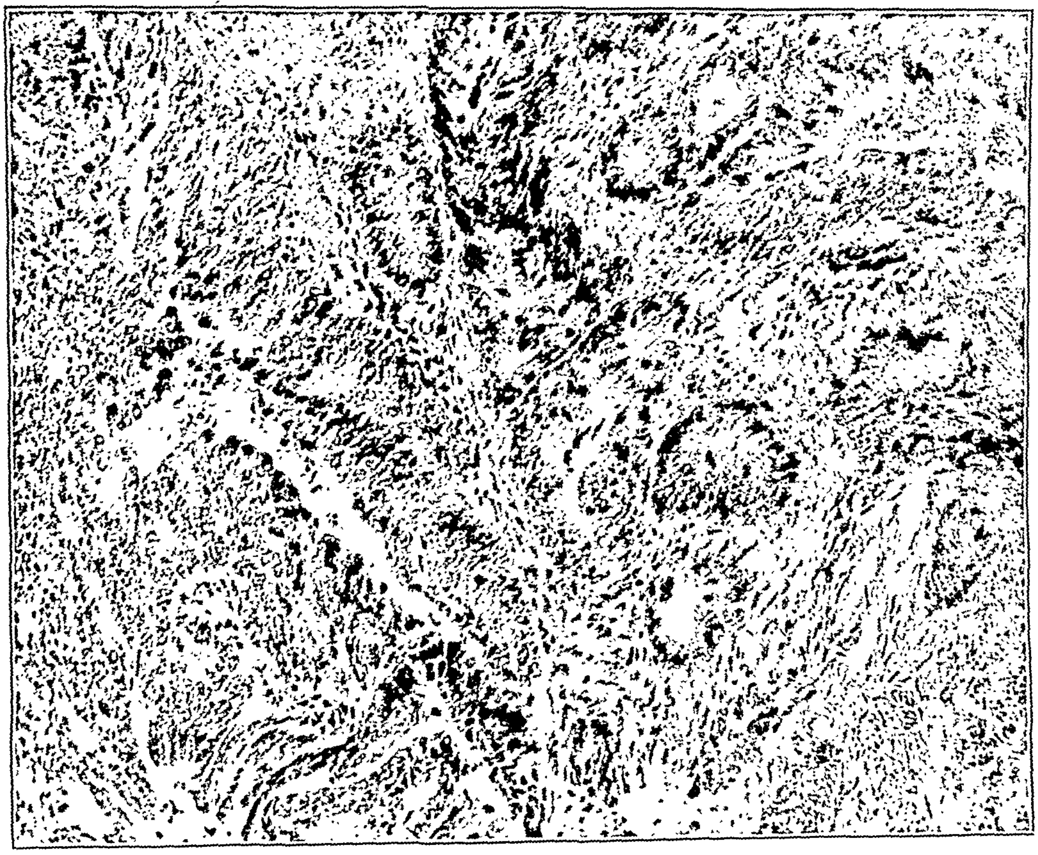

Fig. 5 (Case 3).—*Adenocarcinoma of the colon, recurrent, before treatment.*

The following series of cases, observed recently by us, present a similar condition of clinical cure without any apparent morphologic changes in the tumor tissue:

Case 1.—Mrs. W. Y., aged 40, was admitted to the Montefiore Hospital in 1906 suffering from bronchial asthma and emphysema. In August, 1915, a hard mass the size of a hen's egg was discovered in the outer margin of the right breast. The skin was adherent to the tumor, and there were enlarged glands in the right axilla. A clinical diagnosis was made of carcinoma of the breast with the involvement of the axillary glands. The general condition of the patient precluded any operative interference, and she was treated by local application of radium to the breast and axillary glands and Roentgen-rays through the chest wall. The breast tumor and the gland at first diminished somewhat in size and then remained stationary. Seventeen months later the patient died from her pulmonary condition. A complete necropsy was performed by Dr. B. S. Kline. A minute search was made for possible metastases, but none were found anywhere in the organism. The microscopic examination of the tumor of the breast showed a scirrhus carcinoma, and the lymphatic glands of the axilla were filled with solid carcinoma. Figures 1 and 2 show that morphologically both the primary tumor and the metastases in the lymph glands appeared quite malignant and did not show any changes characteristic of radiotherapy. Nevertheless, nearly a year and a half after the condition was discovered, no dissemination or distant metastases were found anywhere in the organism.

As a rule, a patient with carcinoma of the breast with the involvement of the axillary glands, if left untreated, dies in less than a year and a half from a general dissemination of the carcinoma. It is thus quite evident that in the case reported here radium and Roentgen-ray therapy inhibited the further growth and dissemination of the carcinoma tissue and transformed it, as it were, into a biologically and clinically benign type of a tumor, though it did not change its morphologic appearance.

Case 2.—Mrs. B. K., aged 40, developed a pedunculated tumor the size of a small orange on the skin of the right supraclavicular region. The tumor was removed in March, 1915, with the pedicle. There was left after the operation an ulcerated area 1 cm. in diameter that did not heal. The microscopic examination (Fig. 3) of the tumor showed it to be a melanotic cancer. The case was then referred to one of us for radium and Roentgen-ray treatment. On examination there was observed the ulceration described above and an enlarged supraclavicular lymph gland about three-fourths inch long. Under the influence of the ray therapy, the ulcer healed and the gland at first diminished somewhat in size and then remained stationary. At present, two and one-half years after the beginning of the treatment, the patient is clinically perfectly well, and no metastatic tumors have developed anywhere. Melanotic cancer is an exceedingly malignant condition, and the average life of the patient is not more than two years. Coley and Hoguet,[2] who made an exhaustive study on the subject, state that the melanotic cancer in the cervical glands is especially malignant, causing death in a short time. In October, 1916, twenty months after the beginning of the treatment, the supraclavicular gland was excised for diagnostic purposes. The microscopic examination (Fig. 4) of the gland showed a morphologic picture identical with the one found in the primary tumor before the initiation of the treatment. Nevertheless, as stated above, at present, eight months after the second operation and two years and three months after the first, the patient is perfectly well and did not develop any secondary tumors anywhere. Here again the radiotherapy inhibited the proliferating power of the cancer cells and arrested the growth of the tumor without having produced any apparent morphologic change.

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[2] Coley, W. B., and Hoguet, J. P.: Ann. Surg., 1916, 64, 206.

Case 3.—Mr. B. G., aged 51, was operated on in December, 1915, for adenocarcinoma of the ascending colon. The tumor was radically removed and a right colostomy performed. In February, 1916, the patient was admitted to Montefiore Hospital. On admission, no recurrence of the carcinoma was found anywhere. In July, 1916, an attempt was made to close the colostomy wound by the aid of clamps, but the operation was discontinued since a recurrence was discovered at the intestinal bridge of the colostomy opening. There was felt a hard tumor mass about a cubic inch in size. The outer surface of the tumor consisted of an ulcerated area about three-fourths inch in diameter. A small piece was excised for examination, and showed microscopically an adenocarcinoma (Fig. 5). For the last ten months the patient has been undergoing Roentgen-ray treatment. He is clinically well, the tumor did not increase in size, the ulceration appears to be partly healed, and no secondary tumors or metastases developed anywhere. Recurrences in intestinal carcinoma are generally malignant, and disseminate all over the peritoneum and kill the patient very rapidly. Recently another piece was excised for examination, and the result of the microscopic study of this later specimen (Fig. 6) is very instructive. There is no direct evidence of any extensive degeneration of the cancer cells or excessive formation of new sclerotic connective tissue characteristic of radiated malignant tumors. But, unlike Cases 1 and 2, the two specimens of this case removed before and after treatment do show a certain morphologic difference. While the specimen taken before treatment shows a perfectly characteristic picture of adenocarcinoma in every field, the specimen obtained after treatment is not so characteristic, and a great many of the tubules resemble more a benign adenoma than an adenocarcinoma. These findings are somewhat difficult to explain. It is possible that the superficial, more malignant part of the tumor was destroyed under the influence of the rays. The partial healing of the ulcerated surface coincides with this assumption. The deeper portions were then inhibited by the Roentgen ray in their further malignant transformation. In any event, a clinical inhibition is quite evident in this case as well.

We have been unable to find in the literature any description of similar cases in which a clinical arrest of disease was accompanied by a complete absence of morphologic changes. Morson,[3] in his description of the various changes which occur in malignant tumors on exposure to the gamma rays of radium, states that there may take place a loss of the reproductive function of the cancer cell, but he does not illustrate this condition in any of his cases. On the other hand, there is a good deal of experimental evidence that elucidates the clinical and morphologic phenomena described in this presentation. Von Wassermann[4] reported in 1914 the results of his experiments on the action of radium on small pieces of mouse carcinoma in vitro. He has shown that the cells remain alive, but the pieces do not grow when they are subsequently inoculated in a healthy mouse. He concludes that the rays act directly on the cancer cells. However, they do not kill the cells, but impair the genuceptors or the proliferating apparatus, and as a result inhibit the formation of new cells. The actual death of the cancer cell and disappearance of the tumor is produced either through the aging of the remaining cells or through the cytolytic powers of the organism. Therefore, the rays act selectively on tissues, the cells of which are rich in genuceptors and proliferate rapidly. This hypothesis of von Wassermann fits in very well also with the frequently observed clinical fact that a malignant tumor may continue to diminish in size weeks after the ray treatment was discontinued. In a recent publication on the effects of radium on tissue growth in vitro, Prime[5] reports very similar results. He observed that radium injures the nucleus of the cells growing in animal plasma, so that it prevents further formation of mitosis. On the other hand, it does not injure the life and functions of the cell. For instance, the outwandering of the cells from the main mass of the tumor in the culture due to ameboid motion continues with the same rapidity as in the nonradiated control cultures. The beating of a piece of a heart muscle placed in the plasma culture continues for the same length of time in the radiated as in control cultures. Identical results were obtained by Halberstädter,[6] who studied the action of the radium rays on trypanosomes in vitro. The effect of the rays consisted in the inhibition of the infectivity of the parasites; that is, they lost their power to proliferate when introduced into a new host after having been radiated in vitro. On the other hand, the motility of the trypanosomes is not impaired by the action of the radium.

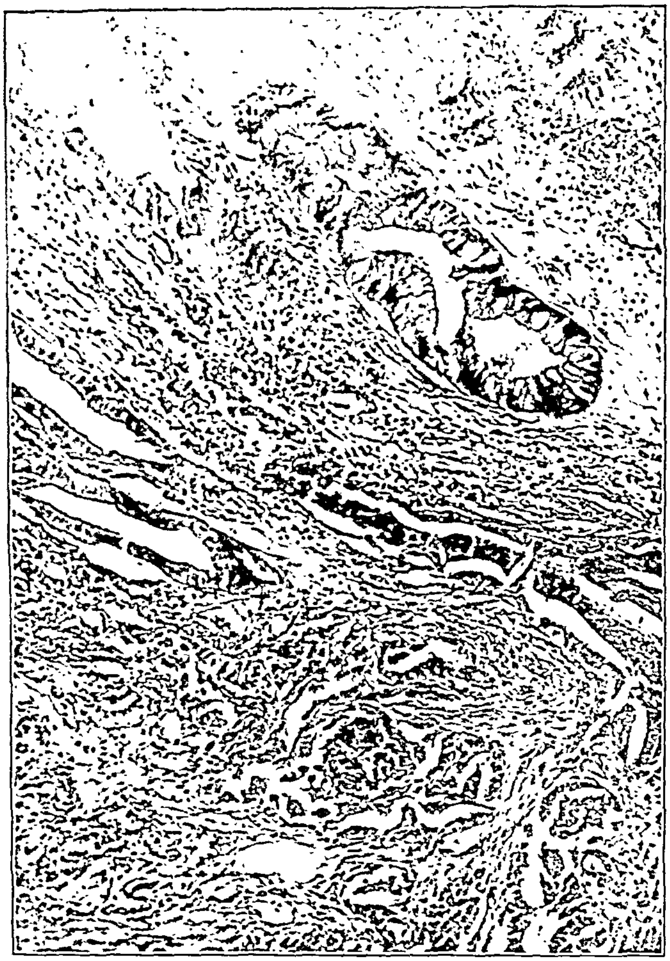

Fig. 6 (Case 3).—Adenocarcinoma of the colon after treatment.

Thus the clinical investigations reported in this presentation as well as experimental studies show that the radium and Roentgen rays may impair deeply the proliferating power and consequently the clinical malignancy of cancer cells without producing any change in the morphologic appearance of the tumor. Indeed, it is quite probable that the first effect of the rays on every malignant tumor consists in the inhibition of the proliferating power, in the *sterilization,* as it were, of the cancer cells. The degeneration and destruction of the cancer cells and the formation of the sclerotic connective tissue takes place subsequently, under the influence of the rays. Moreover, this cell degeneration and cell death may not be due directly to the action of the rays, but takes place in the natural course of the life cycle of the cancer cell. This cycle consists of youth, or period of development; maturity, or period of function; and the senility, or period of degeneration, which gradually leads to death. In parenchymatous organs, like the liver and the kidney, the first period is usually completed during embryonic life or at very early age. The second period continues through the whole life of the organism, and the third period is attained at the old age of the organism or near its death. The life of an individual cancer cell, on the other hand, is very short. It changes rapidly from an embryonic into an adult and then immediately into an aged, degenerated cell, and this process takes place continually irrespective of any extrinsic aid. But in a malignant tumor the majority of the cancer cells are quickly rejuvenated before they reach senility through the fact that each cancer cell changes into two young daughter cells. When the rays arrest this proliferation, then the cancer cells without any further outside aid mature and degenerate. It is interesting to note in this connection that the life of the epithelium of the skin or testicle is nearly as short as the one of the malignant tumors, and the rays act on these organs as specifically as they do on malignant tumors.

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[3] Morson, A. C.: Brit. Jour. Surg., 1915, **2**, 354.
[4] Von Wassermann, A.: Deutsch. med. Wchnschr., 1914, **40**, 524.
[5] Prime, Frederick: Jour. Cancer Research, 1917, **2**, 107.
[6] Halberstädter, L.: Berl. klin. Wchnschr., 1914, **51**, 252.

The importance of this observation is twofold. In the first place, the morphologic appearance of radiated tumor tissue is not an absolute criterion of the therapeutic effect produced by the action of the rays on the tumor. Positive finding of the changes described above as characteristic of the action of the rays is an indication of a therapeutic result. Negative findings, on the other hand, do not preclude the possibility that the tumor was influenced by the rays. Radiated and nonradiated carcinoma tissues may have the same microscopic appearance, and still the former tissue is sterilized and may have lost to a great extent its power of proliferation and consequently its clinical malignancy. In fact, the same holds true for various malignant tumors without any relationship to radiotherapy. An epithelioma may present the same microscopic picture whether it belongs to a comparatively benign, slowly growing ulcus rodens of the face or to a highly malignant epithelioma of the lip. The second point of great practical importance to be derived from this investigation is that the radium and Roentgen rays are capable in a certain number of cases of sterilizing or inhibiting the malignancy of a tumor without destroying it. It is imperative, therefore, to subject every malignant tumor to treatment by the rays, before the performance of the radical or partial operation. The same holds true of postoperative treatment. The rays may sterilize and inhibit the proliferation of the remaining cancer cells, even if they do not destroy them outright.

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ABSTRACT OF DISCUSSION

Dr. Henry Schmitz, Chicago: We must accept the dictum that the radiosensibility of cells depends on various factors. The action of radium is direct and indirect. The direct action causes degeneration of the cells whereby mitosis ceases. The indirect action is a systemic one which, as yet, we cannot explain.

Tumors arise not by the avidity of the tumor cells, but by a decrease of the avidity of the normal body cells. If the resistance of the host declines until it reaches a point where the carcinoma cells overpower the normal cells, then growth of the tumor follows. The question is whether it is not the systemic influence of the rays, that is, the indirect action, which brings about the cessation of growth of the tumors. The direct action of the rays on the carcinoma cells varies and depends on various factors—in the first place, on the specific character of the cells—the less differentiated the cell is the more radiosensitive will it be. It also depends on the age of the bearer of the cells. We know that the rays act very much more readily and intensely in the young than on adults. Cancers also are more malignant at this period. This behavior results from the fact that the cells of the young are more profusely nucleated; the blood supply is more abundant. In the aged, however, the nuclei become fewer and the blood vessels contract by a process of arteriosclerosis, as occurs during senility or decline of life. The carcinoma cannot grow as rapidly. The tumor also will react less powerfully to the rays. The radiosensitiveness of cancer also depends on the structure of the growth. A carcinoma which is very rich in connective tissue is less easily influenced by the rays than one which consists principally of cells.

The indirect or systemic action of the radium rays may result from the splitting up of the cancer cells whereby a cell protein is liberated. This in turn is followed by a leukopenia. In patients in whom we observe a favorable reaction, this negative phase is followed by a leukocytosis and lymphocytosis. Could this fact not be construed as representing an increase in the protective powers of the host and thus explain the observation of Dr. Levin that a cessation of the growth of the tumor occurred, though apparently typical carcinoma cells were found in subsequent examinations?

Dr. Alfred Woelfel, Chicago: In another section, in which a paper on the effect of radium was discussed, the statement was made that the effect on the pathogenesis depended on the malignancy being in a state of active mitosis, as I understood it; that no effect was to be expected from radium rays unless the cells were in a state of active mitosis or unless use was made of the caustic rays. Dr. Levin, however, explains the irradiation effect as consisting of an interruption of the proliferating power of the cells. I would like Dr. Levin to explain that a little more fully. I gather from his paper that he means that the action of the rays on the pathogenesis is not limited to the time in which the cells are in an actual state of mitosis.

Dr. James Ewing, New York: I have often observed the condition which Dr. Levin presented and which others also have observed. I do not think, however, that any of us have wanted to commit ourselves to the view that the physical treatment of cancer can rest with the production of this state of suspended animation in cancer tissue. In practically all Roentgen-ray and radium clinics there are patients who are doing fairly well, but who still have obvious signs of the disease and whose tissue shows that the tumor cells are still in an excellent state of nutrition, and sometimes with a mitotic process going on. The disease is still there but the patient is doing very well. Yet their condition is very unsatisfactory, both to the surgeon and to the Roentgen-ray therapeutist.

The tendency is to do something more for these people and to attempt to destroy these cells, and the result in most instances is unfortunate. I am inclined to think that in the treatment of inoperable cases of advanced carcinoma by physical agents we shall have to come to the conclusion that all that can be expected is to bring the tumor to the state of suspended activity described by Dr. Levin; and if we can add to the duration of life by 10 per cent. of the present expectation, we shall have accomplished a great deal. It may be that physical therapy will have to leave to other methods the final solution of this problem.

As for the direct and indirect effects of physical agents, that is a matter in which there is a difference of opinion. Until we know a good deal more about the indirect effect of the rays, we had better trust to the direct effects.

Dr. Isaac Levin, New York: I need not reply to Dr. Schmitz's question, since Dr. Ewing has answered it. There is no direct proof of the existence of a secondary immunizing effect of the rays on the organism, and for the present we must accept only the direct action of the rays on the malignant tumor. The pathologic and clinical evidences of malignancy do not always coincide. A pathologist cannot decide from the microscopic appearance whether the specimen is derived from an ulcus rodens or an epithelioma of the lip. Clinically, on the other hand, the former is a comparatively benign condition, while epithelioma of the lip belongs to the most malignant types of cancer. The same is true of the case of melanotic cancer described in the paper; the condition surely lost its clinical malignancy since the treatment was initiated. Still the two specimens taken before and after treatment show an identical microscopic picture.

The comparative number of mitotic figures found in a microscopic specimen is also no direct indication of clinical malignancy. There are round cell sarcomas which show under the microscope a great many mitotic figures but which are clinically comparatively benign.

The first action of the rays on the cancer cells consists most probably in the inhibition of their proliferating power without any degeneration and actual destruction of the cell. The latter follows subsequently. It is true at the same time that when this stunning, as it were, of the cancer cell is not followed by its destruction, then it may ultimately recover, and a recurrence of the tumor will take place. The same process probably takes place when the tumor recurs twenty years after a radical operation.

OILED GAUZE AND THE ABSORBING POWER OF COTTON SPONGES*

TORALD SOLLMANN, M.D.
CLEVELAND

"Nonadhering surgical gauze" was introduced by H. E. Fisher.[1] It was prepared by saturating the gauze with a soft paraffin mixture made by the addition of petrolatum, lanolin or stearic acid to paraffin. Fisher asserts especially that the blocking of the fibers prevents matting with secretions and débris; that it prevents adherence of the gauze, and that the granulations of tissue repair are not injured when the dressing is removed.

While working on paraffin bandages, I became interested in the permeability of such bandages as influenced by various waxes and oily preparations. A series of gauzes of loose and close mesh were prepared by impregnating them with paraffins of different hardness, ranging from hard paraffin to liquid petrolatum.

As the result of experiments I find that "oiled gauze," that is, gauze that is impregnated with liquid petrolatum, holds out considerable promise of usefulness. Cotton sponges wrapped in this oiled gauze absorb viscid fluids very much better than when wrapped in plain gauze; the gauze is soft and pliable; it is easily prepared, and it can be sterilized by heat after impregnation.

In the course of the investigation a loose mesh cheesecloth and a close mesh muslin were compared; it was found that the former permits much better absorption. I also used a series of mixtures of paraffins[2] for impregnating the gauzes, but found that liquid petrolatum alone is superior. This oiled gauze is prepared by dipping the cloth into the liquid petrolatum and expressing out the excess.

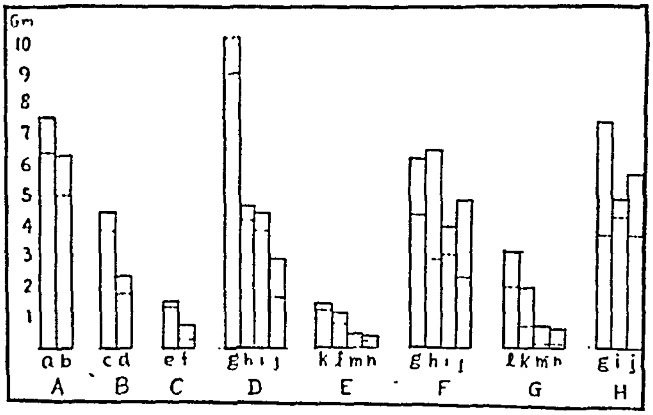
The technic of making the absorption tests was as follows:

Sponges were prepared by wrapping 1 gm. of absorbent cotton in a piece of the gauze, 12 cm. square. Egg white and egg yolk were used to simulate wound discharges. The egg white or egg yolk was placed in a flat bottom pan, in a layer perhaps 2 to 3 mm. thick; and in this were placed the sponges, which had previously been weighed. The sponges were reweighed at intervals. The results are shown in detail in the chart.

The results of the experiments may be thus summarized:

1. Sponges made of compressed cotton[3] absorb better than those made of loose cotton.

2. Sponges made with the cotton layers parallel to the surface absorb much better than those made with the layers vertical to the surface.



Absorption of fluid by sponges: The dotted line shows the grams of fluid absorbed in one hour, and the solid line that absorbed in twenty-four hours. *A* to *E* represent the absorption of undiluted egg white; *F* and *G* that of undiluted egg yolk, and *H* that of beaten egg. *A*, comparison of (*a*) compressed and (*c*) plain cotton, wrapped in cheesecloth; *B*, comparison of cotton applied (*c*) horizontally and (*d*) vertically; *C*, comparison of (*e*) cotton in muslin and (*f*) charcoal in muslin; the cotton, as in all these experiments, weighed 1 gm.; the charcoal pad contained 4 gm. of granular charcoal; *D* to *H*, comparison of treated and untreated gauze; (*g*) Stanolind cheesecloth; (*h*) 50 per cent. Stanolind cheesecloth; (*i*) plain cheesecloth; (*j*) Fisher cheesecloth; (*k*) plain muslin; (*l*) Stanolind muslin; (*m*) 50 per cent. Stanolind muslin; (*n*) Fisher muslin.

3. The sponges wrapped in loose mesh fabric absorb somewhat better than those wrapped in close mesh fabric.

4. Sponges filled with cotton absorb much better than those filled with powdered charcoal.

5. Sponges covered with gauze impregnated with liquid petrolatum absorb very much better than sponges covered with plain gauze.

6. Sponges covered with gauze impregnated with 50 per cent. liquid petrolatum are intermediate.

7. Sponges covered with gauze impregnated with Fisher's mixture do not absorb as well even as those covered with plain gauze.

8. The influence of oils, etc., on absorption is practically the same for loose mesh as close mesh gauze; and for egg albumin and egg yolk.

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* From the Pharmacologic Laboratory of the Western Reserve University, School of Medicine.

* Partly supported by a grant from the Committee on Therapeutic Research of the Council on Pharmacy and Chemistry of the American Medical Association.

[1] Fisher, H. E.: Nonadhering Surgical Gauze, The Journal A. M. A., March 25, 1916, p. 939.

[2] The following paraffins and oils were employed: hard paraffin (Parowax brand); 20 per cent. white petrolatum: paraffin (Parowax), 80 parts, white petrolatum, 20 parts (Fisher's formula); 1 per cent. naval pitch: preceding mixture with 1 per cent. naval pitch added; 50 per cent. liquid petrolatum: equal parts of paraffin (Parowax) and liquid petrolatum; liquid petrolatum (Stanolind liquid paraffin).

[3] The finished sponge was compressed in an old style letter press.

The favorable influence of the oiled gauze is explained by the protection that the oil furnishes against swelling of the thread and obstruction of the mesh.

I have not yet had the opportunity of investigating whether it is as little adhesive as the Fisher preparations; but it is certainly more favorable to absorption, and I would therefore suggest its use for dressing moist wounds.

ECLAMPSIA AND LUMBAR PUNCTURE

J. W. SNYDER, M.D.
MICHIGAN CITY, IND.

At 1 a. m., April 23, 1917, I was called seven miles from town to see Mrs. W., aged 25, with her first child. Pains had begun at 4 p. m. the preceding afternoon, and at 11:30 she had a convulsion. By the time I reached her she had had four convulsions, and a fifth quickly followed. In the intervals she was delirious, tossing about the bed. Restraint was necessary to keep her on the bed at all. On hasty examination I found the cervix dilated and the head in left occipito-anterior presentation on the perineum; but the patient seemed to be unable to deliver the child, mainly because she made no intelligent effort to aid the labor pains. Being alone, except for the assistance of an excited husband and a grandmother who could not speak English, I gave the patient ether and made a forceps delivery. When the patient recovered I gave her ½ grain of morphin, and as the convulsions were returning I ordered her removal to the city hospital, to which she was admitted at 4:30 a. m. On catheterization, 4 ounces of urine were obtained which tested over one-half albumin by volume, and also gave a decided reaction for diacetic acid. One thousand c.c. of physiologic odium chlorid solution were given under the breast, followed two hours by 1,000 c.c. of sterile water. Sodium bicarbo-e and glucose solution were given by bowel. One-fourth ain of morphin and 1/200 grain of scopolamin were administered by hypodermic injection and repeated in two hours. Two minims of croton oil were given on the tongue.

Four hours after admission, the temperature was 102, the pulse 108 and the respirations 34. Six convulsions had occurred in the four hours' time. In the next two hours there were four convulsions more severe than those that had occurred before. The temperature went up to 105.2 by axilla, the pulse was 130, and the respirations were 36. One three-hundredth grain of scopolamin and 1/6 grain of morphin were given, and in the next hour three more convulsions occurred. At 11 o'clock the temperature was 106 by axilla, the respirations 34 and the pulse 140, very weak and irregular. The breathing was shallow and irregular, with considerable edema at the base of the lungs. The face was congested and cyanotic. As a last resort I did a spinal tap, not expecting any good, as I thought the patient would be dead inside of an hour. The spinal fluid did not seem to be under much increase of pressure, flowing slowly in drops and being perfectly clear. About 2 drams were removed and no more because I could see no reason to expect benefit from it. Before I left the room the appearance of the patient had changed. The face began to lose much of the congested appearance, and the respirations became more regular and deeper. Within one hour the temperature had fallen to 105, the respirations were 34, and the pulse was 112. No more convulsions occurred. At 2 p. m. the temperature was 103, the pulse 108, and the respirations 30, and 26 ounces of urine were removed by catheter.

From that time on the patient made a steady recovery. The temperature reached normal on the third day, and the patient recovered consciousness on the evening of that day. She had no recollection of labor or anything following. Sodium bicarbonate and glucose solution was continued by bowel for several days, and the bowels were thoroughly evacuated. The patient left the hospital, May 5, in good condition except for some necrosis at the point of giving hypodermoclysis.

This case may be only an accident, but I believe that in similar cases the procedure merits repetition. It is, of course, not a measure to remedy the toxemia, but only a means to control the convulsions. I have found a report by W. T. Wilson[1] regarding this procedure in two cases of eclampsia with beneficial results. Recently Musser and Hufford[2] reported a series in which lumbar puncture controlled the delirium of pneumonia. I believe the procedure is used also with advantage in the delirium of alcoholism and to control convulsions in meningitis.

THE TREATMENT OF EPIDEMIC POLIOMYELITIS WITH IMMUNE HORSE SERUM*

PRELIMINARY REPORT

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ROCHESTER, MINN.

In a previous report,[1] it has been shown that the serum of a horse, which had been immunized with streptococci isolated from the central nervous system of monkeys paralyzed with virus, had the power to neutralize virus in vitro, and to prevent poliomyelitis in monkeys following intracerebral inoculation of active virus. Moreover, this serum appeared to have a curative effect in the experimental disease in monkeys after the symptoms had begun.

Opportunity to test the effect of this serum in patients presented itself during the present epidemic of anterior poliomyelitis at Davenport, Iowa, and surrounding community. The routine procedure consists of making a spinal puncture for diagnostic tests and for relief of abnormal intraspinal pressure, and of injecting the serum. From 5 to 30 c.c. of spinal fluid are allowed to escape, depending on the age of the patient and the amount of pressure. The fluid is made to flow slowly because it is believed that rapid withdrawal might be harmful. The cell count and Noguchi's globulin test are made at the bedside, and if positive, the injection of serum is given at once. The serum is activated with complement by adding one part of fresh guinea-pig serum to nine parts of the immune serum and incubating at 37 degrees for one hour. It is then diluted with equal parts of 0.85 per cent. salt solution. The diluted serum is injected slowly into a suitable superficial vein not later than thirty-six hours after activation. Approximately 2 c.c. of the mixture are injected per minute of time. The dose is varied according to the age of the patient and severity of the symptoms. Babies from about 1 to 2 years of age are given from 3 to 7 c.c. of serum at each injection, that is, 6 to 14 c.c. of the mixture; children from 2 to 5 years of age from 7 to 10 c.c., and older individuals from 10 to 20 c.c. The injections are repeated in from eight to twenty-four hours if necessary.

Every patient in whom the diagnosis is definite, and the disease still active, is given injections of serum irrespective of the severity of symptoms. Altogether forty-four patients have been treated. Of these nine died, a mortality of 20 per cent. Of the nine fatal cases, six were moribund, or in a dying condition from respiratory failure at the time the serum was given, and hence should not be included as treated cases. Of the thirty-eight patients in whom there was sufficient time for the serum to act, three died, a mortality of 8 per cent. One of these was a baby 11 months old, semicomatose with spasms eight days after onset of the illness when the serum was first given. One, a boy 2 years old with cyanosis, marked tremors, high fever, severe gastro-enteritis and beginning respiratory paralysis on the second day at the time of the first injection; and one, a girl 11 years old, with high fever and paralysis of the face on the third day when the first dose of serum was given. Of these thirty-eight treated cases, twenty-two showed definite paralysis when the treatment was begun, and sixteen were in the preparalytic stage. Excepting the three fatal cases in the former group, paralysis appeared to be arrested in all but one, a boy 5 years of age, in whom a moderate paralysis developed in the left leg, the first injection of serum being given on the second day of the disease. All of the sixteen cases treated before paralysis had begun recovered without paralysis.

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[1] Wilson, W. T.: Lumbar Puncture for the Relief of Convulsions in Puerperal Eclampsia, The Journal A. M. A., Sept. 2, 1916, p. 742.

[2] Musser, J. H., Jr., and Hufford, H. K. B.: Lumbar Puncture for the Relief of Delirium in Lobar Pneumonia, The Journal A. M. A., April 28, 1917, p. 1231.

* From the Mayo Foundation.

[1] Rosenow, E. C.: The Production of an Antipoliomyelitis Serum in Horses, The Journal A. M. A., July 28, 1917, p. 261.

These results are in sharp contrast to the twenty-three untreated cases which occurred during this epidemic of which nine patients died, a mortality of 35 per cent.

The apparent good effects from the injection of serum are often striking. The headache, nervousness, restlessness and tremor often disappear promptly. The temperature and pulse rate are lowered. A beginning paralysis often disappears in an astonishingly short time. A rapidly progressing paralysis is often arrested and improvement is unusually rapid. The postparalytic pains do not appear or are comparatively mild. It is believed that the unactivated serum would do good, and that intraspinal injections might be given with benefit, but since the activated serum and intravenous injections have given the best results in monkeys, and are yielding such splendid results in patients, I have not felt justified in changing the method. Intravenous injections in this epidemic appear especially desirable because the gastro-intestinal symptoms are so pronounced.

It is, of course, realized that many more patients must be treated before conclusions can be drawn as to the exact value of this treatment. Of its harmlessness and apparent good effects, there can scarcely be any question. There is on hand enough serum to treat approximately 800 patients. Suitable quantities will be sent gratis on request to physicians or laboratories for reports of cases in localities where poliomyelitis now exists in epidemic form.

I wish here to express my very great appreciation for the courtesies extended me in the use of the Pathological Laboratory at Mercy Hospital, and of the splendid cooperation of the physicians making it possible to treat the disease in the early stages.

The Panama Canal in Switzerland.—At the meeting of the Zurich Medical Society, March 10, a lantern slide lecture on the Panama Canal was delivered by Lieutenant Lutz, who described the conquest of yellow fever and malaria, and the practical results at Panama. It is mentioned merely as an example of the internationalism of science, enthusiastic credit being paid to the Americans and to Finlay of Cuba, with comment on the inevitable failure of the French, at that stage of science, the Swiss audience, and the speaker an interned German officer.

SIMPLIFIED METHOD FOR THE PREPARATION OF CARREL-DAKIN SOLUTION

FREDERIC ROSENGARTEN
PHILADELPHIA

The preparation of neutral solution of chlorinated soda by the process described by Carrel and Dakin requires more or less chemical skill and equipment. With the proposed process nearly any one can prepare the solution without the use of chemical apparatus and within ten or fifteen minutes.

The materials and process for preparing the solution are:

1. Chlorinated soda solution, which should contain from 2.8 to 2.9 per cent. of available chlorin.
2. An approximately 5 per cent. aqueous solution of sodium bicarbonate.
3. Phenolphthalein powder.

Dilute 1 volume of the chlorinated soda solution with 5 volumes of water, add 25 c.c. of the sodium bicarbonate solution for every liter of chlorinated soda, and mix well. Now remove about 20 c.c. of the solution, add to it a small pinch of phenolphthalein, and shake gently for two minutes. If no red color appears, the solution is ready for use. Should a red color develop, add from 10 to 20 c.c. more of sodium bicarbonate to the solution, mix well, and test for free alkali with phenolphthalein as described above. Repeat the addition of sodium bicarbonate if necessary, until 20 c.c. of the solution show no red color when tested with phenolphthalein in the manner described above. A slight excess of sodium bicarbonate will probably not affect the quality of the solution.

The objection to the use of ordinary chlorinated soda solution for the treatment of wounds is that the solution almost invariably contains caustic alkali, which causes an irritation of the tissues. To overcome this, Carrel and Dakin use also sodium bicarbonate in the preparation of their solution, the sodium bicarbonate serving to neutralize any hydroxid present in the chlorinated lime. The same principle is applied in the proposed process, the only difference being that the sodium bicarbonate is added to the already prepared chlorinated soda solution. It is, however, this very difference that makes the preparation of the solution very easy because chlorinated soda solution of from 2.8 to 2.9 per cent. available chlorin is readily obtainable and keeps well when properly preserved; all that is necessary is to dilute the solution and neutralize it with sodium bicarbonate.

Since the solution prepared by the proposed process is *free of caustic alkali* and contains the same amount of available chlorin as that prepared by the Carrel-Dakin process, it is reasonable to expect that it will have the same therapeutic value.

Neither of the solutions will keep for a long time, but if we can judge from one comparative experiment carried out with each solution, the one prepared by the proposed process retains its value for a longer time than the solution prepared by the Dakin process. Thus while the latter solution containing, when prepared, 0.47 per cent. of available chlorin, showed only 0.41 per cent. at the expiration of two weeks, a solution prepared by the proposed process and also originally containing 0.47 per cent. of available chlorin still tested 0.44 per cent. after three weeks.

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Military Medicine and Surgery

DICHLORAMIN-T IN THE TREATMENT OF THE WOUNDS OF WAR

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It seems to be agreed that the chlorin compounds which have been derived from the old Labarraque's solution have given, in general, the best results in the treatment of the wounds of the present war.[1] I do not mean that equally good results have not been obtained by certain workers with hypertonic salt solution, or that equally good results have not been obtained by the proper utilization of the fundamental surgical principle of drainage, without the use of any antiseptic or lymphagogue whatever.

These chlorin-containing solutions, variously known as eusol,[2] Dakin's solution and Daufresne's solution, have suffered from two serious faults. They are not particularly stable, and must be prepared with care. Further, these solutions contain so little antiseptic value that they must be frequently renewed in the wound.

The latter fault has been overcome by the methods which have been devised for frequent renewal of the antiseptic solution, as often as may be necessary, without disturbing the entire wound dressing. The best known of these methods is the Carrel tube. It should be emphasized that the Carrel tube is not a surgical method in itself; it is not the essence of wound treatment; a few Carrel tubes placed in a wound will not heal the wound; the tubes must be used to convey the antiseptic frequently to the recesses of the wound. I mention this because it has seemed as though some surgeon had not quite grasped the point.

It is further quite certain that the use of the Carrel tube has led many surgeons far away from the surgical principle of free, dependent drainage, a principle established by centuries of surgical experience. Therefore we constantly find wounds constructed by the surgeon in direct opposition to the laws of gravity and surgery, wounds which do not heal kindly even when "puddled," but which would have healed of themselves if they had been given wide dependent drainage.

These facts were perfectly clear to Dakin's mind and led him to seek for a more effective chlorin compound, a compound which should contain enough available chlorin to suffice for a period of at least twenty-four hours, and which should be nontoxic and nonirritating. The first result of this study was chlormin-T (toluene-para-sulphon-sodium-chloramin) and later dichloramin-T (toluene-para-sulphon-dichloramin).[3]

Dr. Dakin asked Dr. Walter E. Lee, of the Pennsylvania Hospital of Philadelphia, and me to test the surgical value of the new preparation. Our solutions were first prepared by Dr. Byron M. Hendrix of the Department of Physiological Chemistry of the University of Pennsylvania, following Dr. Dakin's instructions, and later, by the Henry Phipps Institute of Philadelphia, through the courtesy of Dr. Paul A. Lewis of the institute. Our preliminary results have been reported,[4] but it has been my good fortune, with the United States Army Base Hospital No. 10, to test the effect of the new preparation on war wounds in a British general hospital in France. Our results with these wounds bear out our first report in every particular and further emphasize certain features of the method.

There are more things to be considered in the treatment of war wounds than the direct effect of the treatment on the wounds themselves, that is, if two methods give equally good results in wound healing, but the one methods is less painful, and effects a marked saving of time, labor and material, then the second method far surpasses the first.

It seems almost useless to me to discuss at any great length the results in regard to the wounds themselves, because probably equally good results can be obtained by the proper use of any method, so far as final wound healing is concerned; and further, surgeons are so constituted that they do not believe any other surgeon's results, anyway, until they have tested his methods for themselves — doubtless a most praiseworthy attitude of mind in a profession in which new suggestions for old and tried methods are rather numerous.

We have treated some eighty patients with Dakin's dichloramin-T; some have been old cases with foreign bodies lying in the bone, and suppuration did not stop until the foreign body was removed. Fresh cases in which the casualty clearing station has left us enough integument to permit it have been treated with dichloramin once and immediately closed and have healed by secondary intention. Sixteen cases, old and fresh, were cultured after treatment with dichloramin-T for varying periods, of which eleven gave no growth whatever; of the five in which a growth appeared, four were old cases of deep bone involvement; the only growth was the *Staphylococcus aureus* in four cases and in one case the pyocyaneus.

The wounds fill rapidly with granulation tissue of healthy color which exhibits no tendency to exuberant growth and no tendency to become water soaked and indolent; the skin edges grow in very rapidly.

These results are no different from those which can be obtained by other methods, and no one would believe them if they were any better. Let me say, therefore, that the surgeons of the unit are agreed that the wounds treated by dichloramin-T are in every way as satisfactory as they have ever seen under any method; and two of our surgeons have had previous experience in France, while all are surgeons of long experience in civil practice.

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[1] Makins, G. H.: Brit. Med. Jour., 1917, **1**, 789. Dakin, H. D.: Ibid., 1917, **1**, 833.

[2] "Eusol" is a contraction of "Edinburgh University Solution." This is the acid hypochlorite solution advocated by Lorrain Smith. Quoting Useful Drugs, Edition 2, page 44: "The acid solution (Lorrain Smith's) may be prepared by shaking 12.5 gm. of chlorinated lime and 12.5 gm. powdered boric acid with 1 liter of water, allowing the mixture to stand for some hours, and filtering. The neutral solution (Carrel-Dakin's) is made by dissolving 14 gm. of anhydrous sodium carbonate in 1 liter of water, adding 20 gm. of chlorinated lime, shaking the mixture, after half an hour siphoning off the supernatant fluid from the precipitated calcium carbonate, filtering and neutralizing by adding boric acid (usually 2.5 to 4 gm.) until a drop of the solution does not redden a few drops of phenolphthalein solution. The alkaline preparation of *hypochlorites* is represented by the solution of chlorinated soda U. S. P. described below. Unless strongly alkaline, solutions of hypochlorites decompose rapidly."

[3] For a description of the method of preparation of the dichloramin-T and the chlorinated oils, see Dunham, E. K., and Dakin, H. D.: Brit. Med. Jour., 1917, **1**, 865. Dakin, H. D.; Lee, W. E.; Sweet, J. E.; Hendrix, B. M., and Le Conte, R. G.: A Report of the Use of Dichloramin-T (Toluene-Parasulphondichloramin) in the Treatment of Infected Wounds, The Journal A. M. A., July 7, 1917, p. 27.

[4] Dakin et al., *Footnote 3.*

The results along other lines are capable of more definite demonstration, and it is on these that I would lay the most emphasis.

This new dichloramin solution is made by dissolving the crystals of dichloramin-T in chlorinated eucalyptol and then diluting this solution by the addition of chlorinated paraffin oil. It is best applied by an oil spray, an ordinary hard rubber or all glass atomizer being the most practical method. Metal atomizers are not suitable, since the metal is attacked by the chlorin.

This oily solution presents the first great advantage — the dressings do not stick to the wound, and the entire act of dressing is relatively painless.

The gauze does not have to be separated from the granulations by soaking with some liquid or other. It is therefore not even necessary in the average wound to place a waterproof protective covering over the bed linen while dressing, and the necessity of moving the part or the patient is obviated. The old dressing is simply lifted off, and the wound sprayed; the force of the spray will dislodge sloughs, and the wound is covered with a fresh dressing.

It is perfectly evident that a very important saving of time results from this simplicity of dressing. One surgeon has repeatedly dressed thirty wounds in ninety minutes, an average of three minutes to each dressing. These figures and the figures to be given later refer to the acute wards, in which the patients are all bed patients.

The solution contains enough available antiseptic so that one dressing every twenty-four hours is ample for large, deep wounds, and one dressing every forty-eight or seventy-two hours is enough for the simple or more superficial wounds. Since the solution contains so much available chlorin and does not have to be renewed every few hours, the use of the Carrel tube is entirely done away with. The oily solution of dichloramin-T creeps into all the wound crevices and corners, and it can be readily introduced into sinuses by means of a cotton swab dipped into the solution.

TABLE 1.—COMPARATIVE USE OF MATERIAL, JULY 5, 1917

Wards	Gauze, 6-yd. Rolls	Cotton, 1-yd. Rolls	Treatment	No. of Patients
1	12	2.5	Eusol	23
2	10	4	Eusol	22
3	3.5	2.5	Dichloramin-T	23
4	6	2.5	Eusol	25

The amount of this new solution needed for wound dressing should be emphasized. At first thought it would seem that a solution containing oil of eucalyptus and liquid petrolatum would be far too expensive for general use in comparison with eusol. Forty-two wounds were dressed by one surgeon with 35 c.c.; another surgeon dressed 154 wounds with 115 c.c. These figures apply to the acute wards, and include many compound fractures and extensive buttock and thigh wounds. The fact that so little fluid has to be used and that therefore only the wound discharge has to be cared for results in a tremendous saving of gauze and cotton. In Table 1 are given the results of a comparison of the amounts of gauze and cotton used during different periods in the four acute surgical wards of the hospital. Each ward is in charge of surgeons of equal skill and all trained in the same hospital; the nurses are also all graduates of the same hospital training school; in other words, the comparison is not between workers trained in different schools of surgical technic.

Table 2 gives the amount of gauze and cotton used in seven days in three of the acute surgical wards. Ward 2 changed during this period from the use of eusol to the use of dichloramin-T; the figures from this ward are therefore not available. The number of patients was the same in the three wards and the proportion of relatively slight and extensive wounds in each ward was the same.

This saving of material is of importance in several ways. It effects not only a saving of labor from the cotton field to the hospital, a saving of transport, but also an important saving in the hospital itself; the time taken by the nurses in the preparation and sterilization of material can be utilized for the care of the patients, and to this can be added the saving in time, labor and material by doing away entirely with the need for the Carrel tubes.

TABLE 2.—COMPARATIVE USE OF MATERIALS, JULY 4, TO JULY 10, 1917, INCLUSIVE

Ward	Gauze, 6-yd. Rolls	Cotton, 1-yd. Rolls	Treatment
1	72	38.5	Eusol
3	33	7	Dichloramin-T
4	45	18	Eusol

The need for so little solution in wound dressing and the fact that the dressing need be sufficient only to care for the wound discharge means that the bed linen is not wet, with a consequent saving in the moving of the wounded and an increase in their comfort and well being.

The dichloramin-T solution, like all the other chlorin compounds, is a very active lymphagogue in fresh wounds, and the amount of wound excretion may be considerable. The lymphagogic effect may be directly watched in suitable wounds. As granulation tissue develops, the lymph discharge greatly decreases until the wound becomes comparatively dry. The dichloramin-T also possesses to a marked degree the characteristic power of the chlorin solutions in aiding the digestion and removal of necrotic, sloughing tissues. The new solution seems more effective in cleaning up sloughing tissue than the older chlorin compounds. While the majority of our cases come from the casualty clearing station in excellent, clean condition, a sufficient number have reached us with necrotic tissue in the wound amply to satisfy us of the rapidity with which the dead tissue is freed under the dichloramin-T. The tendency to secondary hemorrhage is certainly not increased. We have had but one secondary hemorrhage in the series, which includes a number of deep buttock wounds, and cases of exposed great arteries of the arm and leg.

The solution is not irritating to the skin or mucous membrane, except possibly in the rare individual who possesses an idiosyncrasy to the eucalyptus oil. Such individuals have been reported in dermatologic literature. Among the patients treated here we have encountered only one dermatitis; but since the dermatitis did not develop until after two weeks' use of the solution and was accompanied by high temperature, it is not clear whether it should be ascribed to the oil or to the well known action of wound excretion.

The constituents of the solution are stable, although the final combination is not indefinitely stable, nor can it be exposed to strong light. It is easily prepared from the constituents. The dichloramin-T which I have was put up in packages of 10 gm. each; the content of one package is dissolved in 75 c.c. of chlorinated eucalyptol and diluted with equal parts of chlorinated paraffin oil as needed, making, therefore, approximately a 6.5 per cent. solution of dichloramin-T.

The first application of the solution to a fresh wound produces a smarting or burning sensation, which passes away in a very few minutes; in some individuals this seems quite severe, but I have yet to see the patient who does not prefer this slight smarting to the real pain of removing a wet dressing which has dried around the edge of the wound. After the second or third application the smarting sensation on applying the solution seems to have disappeared.

Since the time to treat an infection is before the infection starts, it is hoped that the dichloramin-T solution can be given an early trial at the field ambulance and casualty clearing stations.

CONCLUSIONS

Dakin's dichloramin-T in solution in eucalyptol and paraffin oil is therefore of great advantage in wound treatment, even if the final results in wound healing were no better, because:

1. It saves the pain of wound dressing.
2. It effects an appreciable saving of dressing material.
3. The amount of solution is of small bulk.
4. The number of wounds which a surgeon can ss in a given time is far greater than by any other thod.
5. The elimination of the Carrel tube simplifies the dressing and the problem of transportation of the wounded.
6. The elimination of the Carrel tube saves the time taken by the nurse for the periodic flushing.

EQUILIBRIUM TESTS FOR AVIATION RECRUITS

CHARLES P. SMALL, M.D.

CHICAGO

Because of the unusual conditions confronted by the aviator, the physical examination of candidates for this branch of the government service is more rigid than for any other branch. Among the most important tests are those for determining the sense of equilibrium. The Bárány rotating chair, or the Jones modification of the chair is used (Fig. 1).

THE BÁRÁNY CHAIR

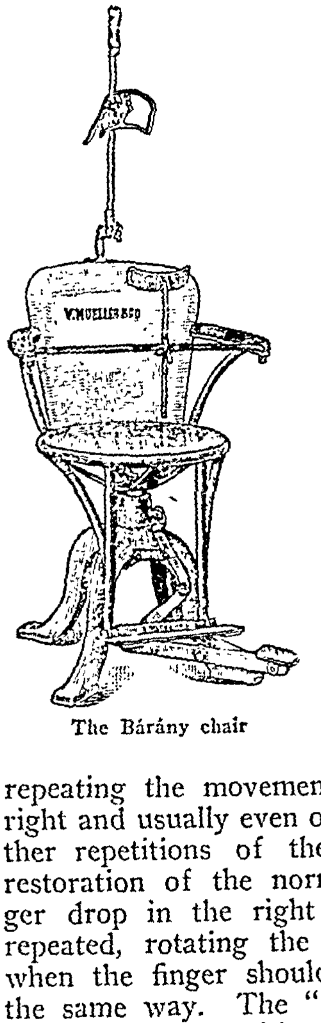
The essential factors in the construction of the chair are a foot-rest to allow the person examined to be revolved freely with his feet resting on the foot-rest, a few inches above the floor; a head-rest to hold the head firmly at the desired angle; a stop catch by which the examiner by pressing with his foot can instantly bring the rotating chair to a stop; and a long arm extending upward behind the chair at a slight angle, by means of which the examiner is able to rotate the chair easily. Before making the tests it is well to have the applicant's ears examined to see that there is no impacted wax in the external auditory canals, also to ascertain the condition of the eustachian tubes, that is, whether or not they are patulous. Applicants are advised to eat a very light luncheon before having this examination, as nausea and vomiting occasionally follow the test.

METHOD OF EXAMINATION

The examiner is provided with a stop-watch. The applicant sits with eyes closed and his feet on the foot-rest; his head is against the head-rest tilted at an angle of about 30 degrees. The chair is rotated ten complete revolutions toward the right in exactly 20 seconds. The chair is then brought to a sudden stop and the applicant is told to open his eyes and look straight in front of him at some distant object. If his horizontal canals are functioning normally, there will be a lateral nystagmus, to the left, continuing for about 25 seconds, although a variation of 10 seconds below or beyond this time is allowable. The process is then repeated, turning the chair this time to the left, which will produce a nystagmus to the right.

THE POINTING TEST

The "pointing test" is next made, as follows: The examiner stands directly in front of the chair, and the applicant sitting erect with his eyes blindfolded is told to extend his right arm directly in front of him and with his forefinger touching the finger of the examiner held at that point. The applicant is now told to raise his arm above his head and quickly bring it down again to exactly the same spot, that is, to touch the examiner's finger when he brings his arm down. He is then made to do the same thing with his left arm.



The Bárány chair

The applicant now assumes an easy position with his arms resting on the arms of the chair; the chair is rotated rapidly to the right, ten times in 10 seconds. The instant the chair is brought to a stop, the examiner again holds his finger in contact with the applicant's right forefinger directly in front of him, and the applicant is again told to raise his arm and quickly bring it down to touch the examiner's finger. In the normal condition the applicant will not touch the finger, but will "past point" several inches to the right of it. On repeating the movement he will again point to the right and usually even on the third attempt. Any further repetitions of the movement should show a restoration of the normal equilibrium, and the finger drop in the right direction. The test is then repeated, rotating the chair this time to the left, when the finger should "past point" to the left in the same way. The "falling test" is now made, to ascertain the condition of the vertical canals. The applicant bends his body forward at an angle of 90 degrees, his eyes still blindfolded, and his head resting on his fists held on his knees. The chair is rotated rapidly toward the right, ten times in 10 seconds. The instant it is brought to a stop the applicant is told to sit straight up. If normal he will fall toward the right side. Assuming the same bent position again, he is rotated toward the left in the same way, and on attempting to sit up straight, he will fall to the left side. The rotation method is now used exclusively in examining the sense of equilibrium, having superceded the caloric method as being more rapid, easier in application and more exact in determining the integrity of the entire vestibular function.

25 East Washington Street.

PROMPT REMOVAL OF FOREIGN BODIES IN GUNSHOT WOUNDS

ARGUMENTS IN FAVOR

KELLOGG SPEED, M.D.
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Coming back into the field of military surgery after an absence of several months, during which interval the lessons of experience have matured, I feel compelled to make an academic statement concerning early removal of foreign bodies in many gunshot wounds. In the service of the British expeditionary forces during 1916 I had the opportunity of caring for thousands of wounded men. This year, returning to the same field in the service of our own United States, and having earned the right, in part, to make general observations, the advantage of early foreign body removal strikes me most forcibly.

With the advancement of the stress of war, the increase of its countless thousands of wounded men and the refinement of efficiency and cruelty of gunfire, the services rendered by the medical corps have progressed favorably. By that I mean not so much the efficiency of individual medical officers, nor the far-seeing arrangements of general officers governing corps movements, as I do the application of simpler methods, the multiplication of excellently equipped casualty clearing stations near the line and the more active immediate treatment by qualified surgeons.

In the first eighteen months of the war, although stupendous efforts at organization of the various medical corps were put forth, and although the results were correspondingly satisfactory, the general outcome fell short of the idealism of surgical work. It was of necessity so. Medical men had to become accustomed to the work in hand, weigh it in the light of their previous experience, and observe results after many methods and months of waiting. That period passed with a lower mortality and a happier general result than any other great war has shown. New infections were encountered and studied, and their untoward results checked. Tetanus was quite firmly controlled in spite of its all-pervading possibilities in trench war.

If methods have improved, if such dreaded infections as gas gangrene are known, if tetanus can be controlled, may we not look to even better results by considering the larger problems of the medical service? Laying aside sanitation, sick men and medical disease, and dealing with wounded men and their recovery, what have we to consider? First, there is the method of gathering up the wounded, and their transportation to comfort and medical aid; secondly, the nearness of high surgical aid and its character, and lastly, the transportation to bases and home lands of the seriously wounded, and return to the firing line as soon as possible of the largest percentage of men for continued service.

When one comes to observe the expanded system of care, comfort and transportation of the wounded from the battlefield, one cannot fail to feel a deep and respectful admiration for its thoroughness. At present it is about the last word on the subject. The expansion of close lying casualty clearing stations, both in number and in capacity, with the personnel better qualified to perform rapid, clean, conservative war surgery, leads me to the points I wish to elaborate, under the second and last heading mentioned.

With the equipment now at hand, it seems best to remove nearly all foreign bodies remaining in the tissues after gunshot as soon as conservatively possible. No discussion is entered into here about subsequent treatment, methods of irrigation, drainage tubes, bismuth iodoform petrolatum paste,[1] or types of dressings. Why should this prompt method be advocated and what are its limits?

It is commonly known that some foreign bodies, especially small ones, will remain in well vascularized, tissues, become encapsulated and cause no harm. That is a fact. On the other hand, take a half million instances of gunshot wounds. Without being able to give any reliable statistics, one may believe that a large proportion of them go on to suppuration, to indications for removal of the foreign body for that reason alone, or for pain or functional interference.

Suppuration, drainage, convalescence, late secondary operations after return to service, with all the handling and expense incident thereto, are a drag on resources. Could not an appreciable portion of this outlay be curtailed by prompt removal of foreign bodies? Because wounded men are rapidly conveyed to casualty clearing stations, there foreign bodies should be removed — with restrictions — so that the wounded may then, within a few hours for the most part, be on the first step to recovery. If suppuration follows, its course is shorter — the foreign body is out. There is far less likelihood of serious gas or other infection. More lives are saved. Time, dressings, the number of the medical corps assistants, transportation expense and home hospitals are curtailed, and a larger proportion of wounded men can be retained near the active field forces and sent back without home travel. One need only enumerate various complications which might be partly obviated. Long draining, secondary sinuses from tissues — foreign bodies lying within — secondary hemorrhages, and finally the psychologic effect on men who carry in their bodies these retained pieces of metal are avoided.

Let me cite some of the incidents of a day's work:

The first man had been shot sixteen months before, a small piece of shell entering the anterior aspect of the thigh. The foreign body had been located by means of the Roentgen ray, and was known to be present; but because it lay deeply near the femur and was small, causing no suppuration, removal was never attempted. The patient had worried so much about this that he finally had to be sent down to the base, complaining of great pain in the foot and the leg. I removed the body, cleanly encapsulated just in front of the femur. Great satisfaction and relief of all symptoms followed.

A second man was shot through the deltoid region. He had no marked symptoms, no bone, blood vessel or nerve injury, and was immediately sent on to the base with a dressing. In twenty-four hours a gas infection developed, and in spite of amputation, death followed quickly. Possibly extraction and drainage at the time of reception in the casualty clearing station would have saved his life.

Another instance of gunshot penetration of the knee joint may be cited. It had a small wound of entrance. Exploration arthrotomy was performed as soon as the patient was received. The joint was found transversed, was washed out with saline solution, and after removal of the foreign body the synovial membrane was closed snugly. The external wound was trimmed and sutured, and a small drain inserted to the closed capsule. Splint and extension were applied. Recovery followed with a useful knee joint.

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[1] This is a paste much in vogue at the present time for smearing into wounds, followed by tight closure. It is sometimes referred to in English literature as bismuth iodoform paraffin paste, or B. I. P. P. Hence "bipp" and the verb "bipped."

Why should not all gunshot wounds be thus treated? Some cannot be, of course. Loss of blood, shock, anatomic inaccessibility, and perhaps a rush of work forbid. The first three named reasons may be adequate — the last not.

In all instances of gunshot injury with retained sizable missiles except those to be classed with complications of loss of blood, shock (anesthetic contraindication) and anatomic inaccessibility, it is suggested, because of the reasons outlined, that prompt removal be adopted.

THE VENEREAL DISEASES

BALANITIS GANGRENOSA

EROSIVE OR GANGRENOUS BALANITIS

(Continued from page 1005)

OTE.—*This is the third of a series of four articles on the agement of venereal diseases with special reference to ary practice. The first article on "The Diagnosis and reatment of Syphilis" appeared September 15, p. 907. The second article on "Chancroid" appeared September 22, p. 1004. The articles have been prepared under the direction of the Surgeon-General by the Advisory Committee on Venereal Diseases, Dr. William Allen Pusey, Chicago, chairman; Dr. Francis R. Hagner, Washington, D. C.; Dr. Grover W. Wende, Buffalo, Dr. Sigmund Pollitzer, New York, and Dr. Henry H. Morton, Brooklyn, with Lieut.-Col. F. F. Russell in charge of Infectious Diseases. The series is published with the permission of the Surgeon-General, and will include the following: Treatment of Syphilis; Chancroid; Balanitis Gangrenosa; Acute and Chronic Gonorrhea, with its complications. The complete series will be issued in the form of a manual.*—Ed.

In connection with chancroid attention is called to this venereal infection, which while rare is important, because of its destructive course, if unrecognized and treated as chancroid.

Balanitis gangrenosa begins as small whitish patches of superficial ulceration which are situated either in the coronary sulcus or on adjacent parts of the glans or prepuce. These excoriations increase in size and produce superficial, small, round ulcers which from coalescence form larger circinate ulcers. These ulcers are covered by a closely adherent necrotic pellicle, and are surrounded by an inflammatory border. The base of the ulcer bleeds readily when the pellicle is detached. The disease invariably occurs under a long prepuce, and when the process becomes well established the prepuce becomes edematous and phimosis usually occurs. There is a free discharge of very offensive thin, yellowish or brownish pus. This superficial form of the disease may get well spontaneously or as the result of treatment, but it is likely to develop into the gangrenous form. An intense edema of the penis develops and a black slough forms in the affected area. If the ulcer is situated on the prepuce, the dark area becomes visible from without. The slough perforates the prepuce and the glans often projects through the opening thus made. If the ulcer is on the glans itself, rapid destruction of it takes place. The whole glans may be destroyed in a few days. Following this, the gangrene spreads to the shaft of the penis, and partial or complete amputation may result. With the gangrenous form the discharge is yellowish or brownish, and is more offensive than in the less severe affection.

In both the erosive and gangrenous forms there is lymphangitis and enlargement of the inguinal glands, but, unlike the course of chancroid, the glands do not suppurate. In both erosive and gangrenous balanitis the parts are extremely tender. Urination is not painful unless the phimosis is such that, in urinating, the urine is dammed back and distends the prepuce.

In erosive balanitis systemic symptoms are trivial or absent. In the gangrenous form there is some sepsis, but in view of the intensity of the infective process it is usually comparatively slight. The patients are indisposed and have slight fever. Occasionally the symptoms are acute, with the temperature reaching 103 or 104 degrees.

ETIOLOGY

The disease is an infection caused by a symbiosis of organisms identical with those found in Vincent's angina and noma. Matzenauer contends that the same infection also produces hospital gangrene. Tunnicliffe, from her studies of Vincent's angina, believes that the spirillum and the vibrio are different forms of the same organism, and that the infection is not a symbiosis, but is due to one organism which under different conditions shows different forms.

The vibriones occur as curved rods with pointed ends, and are about 2 microns long and 0.8 of a micron in diameter. They stain with most dyes and are gram-positive if declorization is carefully done with 70 per cent. alcohol. The spirilla have loose, wavy spirals, and are 6 to 30 microns long, and 0.2 of a micron broad. They travel rapidly by quick back and forward snake-like motions. They are gram-negative, stain with most dyes, but are best examined under the dark field illuminator. The vibriones may be cultivated on serum agar. They are anaerobic, and in the lesions occur abundantly in the deeper part of the necrotic tissue. The spirilla are less abundant and are found more superficially in the lesions. Both are demonstrable in the tissues of the lesion, in the neighboring affected glands, and in the blood vessels.

The organism in the spirillar form occurs as a saprophyte in the mouth. It is only pathogenic when vibriones are also present and under anaerobic conditions, or under conditions of greatly lowered resistance. On the penis it only causes infection when protected from the air by a long prepuce. The infection of the penis is believed to occur from saliva. The affection is a disease of the vagabond class, and it is not extremely rare in public venereal clinics.

DIAGNOSIS

The most characteristic features of the affections are: the presence at or near the corona of the erosive or gangrenous lesions; the peculiarly bad-smelling purulent discharge; the occurrence under a long foreskin; and the presence in the secretion of vibriones and spirilla. In the severe gangrenous cases the rapidly spreading gangrene is very characteristic. The lesions are usually mistaken for chancroids. In balanitis gangrenosa there is a more intense inflammatory reaction, more edema of the prepuce, and more marked phimosis than in chancroid. The indolent glands are enlarged, painless, and do not suppurate as they almost invariably do in chancroid under a long prepuce. In chancroid, vibriones and spirilla are absent.

The lesions do not resemble an uncontaminated chancre, but, as in chancroid, a mixed infection with syphilis may occur and be entirely masked. In the case of mixed infection, the *Spirochaeta pallida* can also be demonstrated in the secretion.

Early diagnosis is of great importance, for a delay in proper treatment for a few hours may mean extensive spread of gangrene.

TREATMENT

The essential fact in the treatment of the condition is to expose the lesions so that oxygen can reach them. Otherwise their spread cannot be controlled. The prepuce should be opened by a dorsal slit, so that the glans is completely uncovered. Then the parts should be kept clean by washing with dilute hydrogen peroxid solution. The best procedure is to keep the parts continually moist either with wet dressings or by continuous irrigation with dilute hydrogen peroxid solution. If this cannot be used, the parts should be frequently irrigated with a bland antiseptic solution and left exposed to the air without dressings. With the use of 2 per cent. hydrogen peroxid solution healing is rapid.

(To be continued)

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

DICHLORAMINE-T, ABBOTT.—Paratoluenesulphonedichloramide.—$CH_3.C_6H_4.SO_2NCl_2$.—The dichloramide of paratoluenesulphonic acid, $CH_3.C_6H_4.SO_2OH$.

Actions and Uses.—Dichloramine-T, Abbott is said to be a powerful germicide, acting much like the monochloramine chlorazene, but capable of being used in solution in eucalyptol and liquid petrolatum, thus insuring a gradual and sustained antiseptic action. As in the case of chlorazene, dichloramine-T, Abbott is said to act essentially like the hypochlorites, but to be less irritating to tissues. Dichloramine-T, Abbott should not be administered internally.

Dichloramine-T, Abbott is claimed to be useful in the prevention and treatment of diseases of the nose and throat; it has been used with success as an application to wounds.

Dosage.—Dichloramine-T, Abbott, dissolved in chlorinated eucalyptol-Dakin and chlorinated paraffin oil-Dakin (which see), is used in concentrations of 2 to 10 per cent. When used as a spray a 10 per cent. solution of dichloramine-T, Abbott, in chlorinated eucalyptol-Dakin, is mixed with four times its volume of chlorinated paraffin oil-Dakin. For application to infected wounds a 10 to 15 per cent. solution of dichloramine-T, Abbott, in chlorinated eucalyptol-Dakin, is mixed with one-half to twice its volume of chlorinated paraffin oil-Dakin. (The solution of dichloramine-T, Abbott in eucalyptol is fairly stable, but the dilutions of this with chlorinated paraffin oil-Dakin should be prepared freshly when wanted.)

Manufactured by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Paratoluenesulphonedichloramide was introduced into medicine by H. D. Dakin and co-workers under the name "Dichloramine-T." It is prepared by chlorinating paratoluenesulphoneamide with subsequent purification (Journal A. M. A., July 7, 1917, p. 27).

Dichloramine-T, Abbott is a pale yellowish crystalline powder, having a strong chlorous odor. It melts at 78 to 83 C. It is insoluble in water, soluble in chloroform and benzene, soluble with difficulty in petroleum ether, slightly soluble in liquid petrolatum and soluble in eucalyptol.

Strong mineral acids liberate chlorine from dichloramine-T, Abbott. It reacts with most substances, such as acids, alcohol, hydrogen peroxide, amines, certain metals, etc. It liberates bromine from bromides and iodine from iodides in neutral solutions.

If 15 Cc. of a saturated aqueous solution of anilin is treated with 0.05 Gm. of dichloramine-T., Abbott, the solution acquires a brownish-red color, which becomes deep blue upon supersaturation with ammonia water.

Two Gm. of dichloramine-T, Abbott are treated with 10 to 15 Cc. of concentrated hydrochloric acid and heated to dryness. The residue is dissolved in a mixture of 1 part alcohol to 1 part water, and an excess of sodium carbonate added. The alcohol is removed by evaporation, and the cooled solution (with considerable insoluble material) is placed in a separating funnel and shaken with chloroform. The chloroform is drawn off, evaporated, the residue dissolved in smallest amount of cold chloroform, and then treated with an excess of petroleum ether. A white precipitate is formed, which, after drying, melts at 134 to 136 C. (Pure paratoluenesulphoneamide melts at 137 C.)

If 0.1 Gm. of dichloramine-T, Abbott is treated with a few drops of sulphuric acid, chlorine is evolved but no blackening occurs (readily carbonizable matter).

One Gm. of potassium iodide is dissolved in about 20 Cc. of glacial acetic acid, and any iodine set free is reduced by the careful addition of sodium thiosulphate solution. About 0.1 Gm. of dichloramine-T, Abbott (accurately weighed) is then added and titrated with tenth-normal volumetric sodium thiosulphate solution. The available chlorine content should not be higher than 31 per cent. or lower than 28 per cent. Each Cc. of thiosulphate solution is equivalent to 0.0177 Gm. of chlorine.

CHLORINATED EUCALYPTOL-DAKIN.—Eucalyptol, chlorinated at ordinary (room) temperature.

Actions and Uses.—Chlorinated eucalyptol-Dakin is used as a solvent for dichloramine-T.

Dosage.—Solutions of dichloramine-T in chlorinated eucalyptol-Dakin should preferably be made as required and without the use of heat. If kept in the dark, stock solutions may be used for thirty days.

Prepared by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Eucalyptol is treated with potassium chlorate and strong hydrochloric acid. After standing twelve hours at room temperature, the eucalyptol is washed, first with water and then with sodium carbonate solution. Dry sodium carbonate is then added to the chlorinated eucalyptol and this allowed to stand for twenty-four hours. The chlorinated eucalyptol is filtered and dried by addition of calcium chloride (Jour. A. M. A., July 7, 1917).

Chlorinated eucalyptol has the color and odor of eucalyptol.

CHLORINATED PARAFFIN OIL-DAKIN.—Liquid petrolatum, chlorinated at ordinary (room) temperature.

Actions and Uses.—Chlorinated paraffin oil-Dakin is used as a diluent for solutions of dichloramine-T, in chlorinated eucalyptol-Dakin.

Dosage.—Solutions of dichloramine-T in chlorinated eucalyptol-Dakin and chlorinated paraffin oil-Dakin are unstable, and should not be over four days old. In any instance they should be discarded as soon as a distinct precipitate appears.

Prepared by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Liquid petrolatum is treated at room temperature with potassium chlorate and strong hydrochloric acid, exposed to bright day light and allowed to stand over night. The chlorinated product is then washed with water, sodium carbonate solution and the oil drawn off, shaken with calcium chloride and charcoal and filtered (Jour. A. M. A., July 7, 1917).

Chlorinated paraffin oil-Dakin has the general physical properties of liquid petrolatum.

HYCLORITE.—A solution of chlorinated soda, each 100 Gm. of which is stated to contain sodium hypochlorite 4.05 Gm., sodium chloride 3.20 Gm., calcium hydroxide 0.25 Gm., inert salts 0.92 Gm. It contains not less than 3.85 per cent. available chlorine.

Actions and Uses.—Hyclorite has the action and uses of solution of chlorinated soda, U. S. P., but its available chlorine content is greater. One volume of hyclorite diluted with 7 volumes of water has the same available chlorine content as neutral solution of chlorinated soda, and is isotonic.

Dosage.—Hyclorite is used full strength or diluted with 1 or 2 parts of water for direct application to mucous membrane, muscular tissue, bone infections, etc. For irrigation of wounds, throat and body cavities dilutions of 1:100 to 1:1,000 are used. For use in the irrigation method of treating infected wounds dilute 1 part of hyclorite with 7 parts of water.

The available chlorine content of hyclorite decreases at the rate of about 12 per cent. per year. In order that due allowance for this decrease may be made when diluting for use, each bottle of hyclorite bears the date of bottling.

Manufactured by the General Laboratories, Madison, Wis. No U. S. patent. U. S. trademark applied for.

Hyclorite is prepared by decomposing chlorinated lime suspended in water with sodium carbonate and adding to the solution obtained, a freshly prepared solution of electrolyzed sodium chloride.

Hyclorite has the properties of solution of chlorinated soda, U. S. P., but contains no carbonate. When exposed to air a pellicle forms on its surface due to the formation of calcium carbonate.

About 10 Gm. hyclorite are weighed and transferred to a dish with about 100 Cc. of water and an excess of pure ammonium hydroxide solution is added. After about one-half hour the solution is evaporated to complete dryness on a water bath. To the residue is added about 50 Cc. of water, 2 drops of methyl orange test solution and an excess (measured) of tenth-normal hydrochloric acid volumetric solution and then the residual acidity determined by titration with tenth-normal sodium hydroxide volumetric solution. The alkalinity found corresponds to not more than 0.25 Gm. calcium hydroxide per 100 Gm. of hyclorite. Each Cc. of tenth-normal hydrochloric acid volumetric solution consumed corresponds to 0.0037 Gm. $Ca(OH)_2$.

Mix in a flask about 5 Cc. of hyclorite, accurately weighed, with 50 Cc. of distilled water, add 1 Gm. of potassium iodide and 5 Cc. of acetic acid and titrate with tenth-normal sodium thiosulphate volumetric solution, starch test solution being used as indicator. It shows not less than 3.85 per cent. available chlorine.

Each Cc. of tenth-normal sodium thiosulphate volumetric solution used corresponds to 0.003546 Gm. of available chlorine. Due allowance should be made for the decrease in available chlorine content of about 12 per cent. per year, date of bottling being stamped on each bottle.

with this widely used insecticide.[1] In the case of apples, the report points out, the maximum amount of the poison that may be expected to occur on the fruit in the ordinary course of events would not exceed 0.5 mgm. per apple. However, as much as 5 mgm. has been found on the surface of an apple after direct spraying with the poison. It is pointed out that such fruit would surely attract attention and in picking and handling would lose a material part of this residue, even if no rains intervened. It is believed, therefore, that under ordinary conditions no apples will reach the consumer carrying such amounts of arsenate of lead per fruit that a healthy human adult can eat enough at one time to cause fatal poisoning. Nevertheless experiments by Carlson and Woelfel at the University of Chicago have shown that lead arsenate, used as an insecticide or spray on fruit trees, is sufficiently soluble in human gastric juice to cause lead and arsenic poisoning. Measures must, therefore, be taken to remove this spray from the fruit. As Carlson has written, from the standpoint of public health rather than of the toxicologist, the question is not how much of the poison may be ingested without producing acute or obvious chronic symptoms, but how completely man can be safeguarded against even traces of the poison. Even extremely small doses of protoplasmic poisons when repeated may gradually produce deterioration and disease.

In the case of small fruits, such as the berries, the possibility of danger is even greater. In the case of the strawberry, to cite an instance investigated in New Hampshire, the surface of the fruit is of such a nature that larger amounts of the poison may be retained and quite possibly may escape notice. These residues also would be less likely to be rubbed off in handling and probably would wash off less rapidly. One portion of strawberries, consisting of one-fourth quart of the berries, may carry as much as 8 mg. of oxid of arsenic. This would probably seldom or never constitute a dangerous dose for an adult person in good health, but it might for a child or for an adult in weakened condition. It seems imperative, therefore, that strawberries fully formed or nearly so should not be directly sprayed with arsenate of lead, unless they are to be thoroughly scrubbed before using. Similar conclusions apply to currants, blackberries and other "small fruits."

The green vegetables which often require treatment by spraying are likewise not exempt from some degree of menace. A whole head of cabbage and lettuce directly sprayed and used without removal of outer leaves, may carry a relatively large amount of the poison. We are told that arsenate of lead should be applied only lightly and sparingly to cabbage or to lettuce that is ready for market. If these vegetables are sprayed the outer leaves should be removed and the heads should then be washed. If this is done, it is believed that there is no danger that these vegetables will carry to the table an amount of arsenic involving a dangerous dose for a human being. The well known experiences of cumulative effects with metallic poisons of the type here discussed, make timely a word of caution in view of the growing necessity for spraying as a procedure in the conservation of many edible products.

LARREY, THE ORIGINATOR OF RAPID EVACUATION OF THE WOUNDED

When Napoleon wrote in his will: "I leave 100,000 francs to Larrey—the most virtuous man I have known," he meant not only probity and honor, but virtue in the Roman sense. Larrey, the soldier, was the dutiful, reliable, courageous man of Roman type; Larrey, the physician, was the big human personality of large benevolent impulses, the kind of medical officer who actually carried a wounded soldier on his back in emergency. He was the generous, warm-blooded meridional, who came up to Paris from the Pyrenees, the type of Frenchman depicted in the canvasses of Ingres and David d'Angers. No French army surgeon has been so well beloved by his comrades since Ambroise Paré. He was one of the brilliant group of military surgeons whom Napoleon knew so well how to gather around him—Larrey, Percy, Desgenettes, a memorable trio. Larrey's system of movable field hospitals or flying ambulances (*ambulances volantes*) was introduced in September, 1792, when, as aide-surgeon-major of the French Army of the Rhine, he made the suggestion to General Custine, a suggestion as fraught with consequences as that of the Earl of Stair (or Pringle) at the battle of Dettingen. It created real first aid and rapid evacuation of the wounded from the battlefield, which is now the chief end of medical administration in campaign. It undoubtely served as a model for Letterman when he devised his improved system of ambulance and field hospital service for the Army of the Potomac in 1863. It was immediately followed by Baron Percy's innovation of telling off and training soldiers as field litter-bearers, to pick up the wounded in the progress of a battle and carry them on stretchers to a first aid station. To quote Larrey's[1] own words:

> My proposition was accepted, and I was authorized to organize this movable field hospital, which I named the flying ambulance (*ambulance volante*). I then conceived the idea of a system of carriages (*voitures d'ambulançe*) suspended on springs, which should combine solidity with speed and lightness. This institution created a sensation among the soldiers; they now all felt confident that they would receive succor at whatever moment they might be wounded!

This, and the centric idea which went with it—that the combatant forces are to feel in action that medical men are with them, that the wounded will be removed to places of safety as rapidly as possible—is Larrey's greatest achievement. But he did a host of other important things.

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[1] O'Kane, W. C.; Hadley, C. H., Jr., and Osgood, W. A.: Arsenical Residues after Spraying. New Hampshire Agr. Exper. Station, Bull. 183, June, 1917.

[1] Larrey: Mémoires de chirurgie militaire, Paris, I, 64.

He was an opponent of meddlesome surgery, which, in his day, was as pestiferous a nuisance as meddlesome midwifery; he believed in leaving simple wounds alone to heal of themselves. He washed wounds with a simple saline solution, and employed the powerful antiseptic, Labarraque's solution, in putrid and sloughing wounds (Da Costa). In place of the fierce purging and bleeding of his time, he fed the wounded a rich diet, even using a laryngeal tube or a nasal catheter for artificial feeding in wounds about the jaws and neck. His method of dressing wounds, cleansing away of débris, trimming of dead tissue and saturation with moist loose bandages, has some present day features. He showed the imperative necessity of drainage in large wounds, head injuries and pleural injuries, and insisted that all punctured wounds should be enlarged by incision and drained. He substituted immediate amputation for the secondary operation then common, but employed conservative resection when he could avoid amputation. He was ahead of his time in his knowledge of the symptoms of brain injuries, and discovered what is now known as Battles' sign—the discoloration over the mastoid process after fracture of the base.[2] In 1802, while in Egypt, he published at Cairo, his account of Egyptian ophthalmia or granular conjunctivitis, a disease which is mentioned and prescribed for in the Ebers Papyrus,[3] but which had remained unnoticed for some 3,400 years, until Larrey saw it. He was the first to point out the contagious nature of this disease, which is the outstanding feature of his historic monograph, and now a point of greatest importance to our immigration inspectors, who pass on the conjunctivae of Levantines and Orientals coming into the port of New York.

Such was the remarkable man who died seventy-five years ago and whose life is recorded elsewhere in our columns[4]—one of the greatest names in the history of military medicine and one of the most honored names in France.

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[2] For these details of Larrey's achievement, we are indebted to the admirable summary by Dr. J. C. Da Costa in Johns Hopkins Hospital Bull., Baltimore, 1906, **17**, 213-215.

[3] See H. Joachim's translation of the Papyrus Ebers, Berlin, 1890, **81**, 83.

[4] See page 1106.

Alarming Mortality Among Negroes.—An alarming mortality among the negroes of Baltimore is shown by the statistics in the health department. Since 1912 there have been 10,813 negro births in the city, while 12,982 have been claimed by death. Among the white race the figures show that during the same period 54,483 births were reported, while 38,889 died. Dr. Blake has made an investigation and found that more than 99 per cent. of all births were reported. Since 1912 there has been a gradual increase in the birth rate in Baltimore. In 1912, 9,387 babies were born; in 1913, 10,309; in 1914, 10,662; in 1915, 11,460, and in 1916, 12,662. The annual number of negro births during the same period has ranged from 2,011 in 1912 to 2,423 in 1916. The greatest number of deaths in any one year since 1912 among the whites occurred in 1916, when 7,983 persons died; the smallest number was 7,525. The average annual death rate among the negroes for the same period was approximately 2,500.

Current Comment

THE OPERATION ON PRESIDENT CLEVELAND

Last week's issue of the *Saturday Evening Post* has a most readable account by Dr. W. W. Keen of Philadelphia of the operation that was performed on President Cleveland twenty-four years ago—in 1893—soon after the president entered on his second administration. The operation, which was performed on a private yacht, was for sarcoma of the jaw. It was quite extensive; a rather large part of the bone was removed; and yet there was rapid recovery and few knew that an operation had been performed. The late Dr. Joseph D. Bryant, who was President Cleveland's physician, performed the operation, Drs. Keen, E. G. Janeway and John F. Erdmann assisting. While the article is not of particular scientific or surgical importance historically, it is of decided interest. Dr. Keen emphasizes the critical financial and political conditions that prevailed at the time and shows how it was absolutely necessary that the dangerous condition of the president should not be made known. It is remarkable that a quarter of a century elapsed before this historically important occurrence was made public.

THE TREATMENT OF ANTHRAX WITH NORMAL SERUM

Human anthrax is increasing steadily and of late rather sharply in this country. It is coming to be recognized by students of industrial conditions as an important occupational disease. As such it must be guarded against with especial care in these days when it is so essential to maintain satisfactory conditions throughout the whole industrial organization. The resistance of anthrax spores to drying and other influences renders the disease difficult to eradicate when once it gets a foothold. Until more stringent measures for the disinfection of hides, wool and similar animal products imported from anthrax infected regions are put in force, a further increase in cases may be anticipated. The case mortality from anthrax, while high, is not as great as is sometimes stated. In the most carefully reported series it seems to range from 13 to 24 per cent., the difference being probably due in part to variations in the extent of diagnosis and in part to inclusion of mild cases. The specific anti-anthrax serum produced by Sclavo is said to have lowered the mortality rate considerably, its use in 164 cases being accompanied by a death rate of 6 per cent., as contrasted with a rate of 24 per cent. in Italy generally. Sclavo's serum has not come into common use in spite of the considerable degree of success that has attended its introduction. One reason may be that the preparation and marketing of the serum seem to entail a high expense, the cost of the initial dose running as high as thirty dollars or more. The country of Argentine with its great cattle-raising industries has suffered more severely from anthrax in recent years than any other part of the world, and it is appropriate that a new and interesting method of treatment should be proposed by R. Kraus, head of the bacteriologic institute of the national department of health of that country.[1] The method, although its theoretical interpretation presents some difficulties, is simplicity itself in practice. It consists in the inoculation, usually intravenously, of normal bovine serum in quantities of 20 to 30 cubic centimeters or more. Intramuscular and subcutaneous injections are said to have given results substantially as satisfactory as the intravenous injections. The serum is heated twice for half an hour at 56 degrees C. before injection. In the report cited it is stated that fifty cases of bacteriologically verified anthrax were treated by this method without a single death. We understand that since this report was published the number of cases treated by Kraus with normal serum has risen to over ninety with but one death. These results are more favorable than those reported from the use of the specific antiserum.

RABBIT-FOOT THERAPY

Few but ignorant darkies have any great faith in the therapeutic efficacy of the left hind foot of a rabbit caught in the churchyard in the dark of the moon. In the light of modern therapeutics one is tempted to believe, however, that had some one person or firm an exclusive proprietary right to this particular brand of rabbits' feet, there would be many intelligent people—and not all of them laymen—ready to swear by rabbit's foot therapy. In medical journals (whose advertising pages set forth the virtues of the pedal extremities of *Lepus sylvaticus*) many solemnly scientific articles would probably appear relating the success that the writers had had with this form of therapy in the treatment of some distressingly stubborn conditions that had failed to respond to all previous efforts. Is it ubiquity that has saved the homely cotton-tail from being a therapeutic hero?

UNIVERSITY OF TEXAS FREED FROM POLITICS

Three months ago reference was made[1] to the attempt by the governor of Texas to secure political control of the University of Texas and its medical department. That attempt aroused a vigorous protest throughout the state. At a special session of the legislature, articles of impeachment were filed and Governor Ferguson was suspended; an appropriation of $1,629,407.17 for the university, including $197,500 for the medical department, which Governor Ferguson had vetoed, was again passed, and three regents of the university named by Governor Ferguson were replaced by those who have the best interests of the university at heart. Ten of the twenty-one charges in the bill for impeachment are now reported to have been returned against Governor Ferguson. Among these charges were his efforts "to coerce and influence the Board of Regents of the University of Texas" and "that he sought to violate the law by removing regents without adequate cause." This vigorous action by the Texas legislature, following the attempt of its state executive to convert the state university into a part of his political machine, will have a deterring effect on further attempts in a similar direction.

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[1] La Prensa Médica Argentina, Dec. 30, 1916, and Feb. 10, 1917.

[1] "Politics Endangers a Great University, Current Comment, The Journal A. M. A., June , 1917, p. 1916.

Medical Mobilization and the War

NEWS OF THE BASE HOSPITALS

Base Hospital No. 3, Mount Sinai Hospital, New York, has been mobilized, and is expecting orders for duty abroad. The medical personnel includes Major M. A. Dailey, M. C., U. S. Army, commanding officer; Capt. William A. Schwab, quartermaster, and the following officers of the Medical Reserve Corps: director (chief of medical service), Major Nathan E. Brill; assistant director (medicine), Capt. Louis Hauswirth; physicians, Capts. Herbert L. Celler, Edwin Sternberger; Lieuts. Daniel Poll, Herbert Emsheimer, Joseph Rosenfeld, Nathan Rosenthal, and A. S. Kversky, neurologist; assistant director (laboratory), Major George Baehr and Lieut. Bernard S. Denzer; assistant director (Roentgen ray), Capt. Leopold Jachss; assistant director (chief of surgical service), Major Howard Lilienthal; surgeons, Capts. Edwin Beer, Walter M. Brickner, Robert T. Frank, Leo B. Mayer, Sidney Cohen, Ira Cohen, S. H. Geist; Lieuts. Alfred Braun, E. Bleier, registrar, and dentists, Lieuts. Jacob Asch and Louis Stern.

Base Hospital No. 23, Buffalo, is now mobilized at Fort Porter, N. Y., under the command of Major G. V. Rukke, M. C., U. S. Army, and is awaiting orders to embark for overseas service. The following is a list of the medical personnel: director, Major Marshall Clinton; registrar, Mr. E. J. Fairbairn, civilian employee; adjutant, Lieut. Timothy F. Donovan; quartermaster, Capt. J. H. Hickey; mess officer, Lieut. H. C. McDowell; commanding officer detach. medical department, Major N. G. Russell; chief surgical service, Major Marshall Clinton; chief medical service, Major N. G. Russell; pathologist, Capt. J. B. Betts; assistant pathologist, Lieut. R. N. De Niord; dental surgeons, Lieuts. C. L. Storms and E. J. Knoche. Ward officers: surgical—Capts. H. A. Smith, F. W. McGuire, J. P. Brennan, D. C. McKenney, L. Burrows; Major J. F. Fairbairn and Lieuts. W. L. Machemer and H. C. Fairbanks. Medical—Capts. F. P. Goodwin, R. E. DeCeu, Baldwin Mann, and Lieuts. H. C. McDowell, J. A. P. Millet, H. F. May and H. K. Hardy.

Base Hospital No. 27, University of Pittsburgh Medical School, has been mobilized at Allentown, Pa.

Base Hospital No. 31, of the Youngstown (Ohio) Hospital has been mobilized at Allentown, Pa., under command of Major Adam E. Schlanser, M. C., U. S. Army, and is awaiting orders for service abroad. The personnel includes: Drs. C. R. Clark, director and chief of medical service; James A. Sherbondy, assistant director and chief of surgical service; B. W. Wilson, first assistant, medical service; C. C. Wolferth, chief of laboratory; S. M. McCurdy, registrar; M. P. Jones, first assistant, surgical service; A. E. Brant, staff surgeon and urologist; J. U. Buchanan, D. A. Nesbitt, E. R. Thomas, C. H. Moses, W. K. Allsop, staff surgeons; J .L. Washburn, ophthalmologist; F. J. Bierkamp, rhinologist and laryngologist; R. R. Morrall, orthopedic surgeon; P. G. Bordon, neurologist; D. B. Phillips, C. D. Barrett, R. W. Fenton, W. H. Bunn, staff physicians; O. D. Hudnut, roentgenologist; C. M. Reed, pathologist; F. W. Ward, W. H. McCreary, dentists.

Base Hospital No. 32, Indianapolis, was mobilized, September 1, at Fort Benjamin Harrison, Ind., under command of Major Harry R. Beery, M. C., U. S. Army. Following is a list of the medical personnel: director, Major Edmund Dugan Clark; Majors Orange Garrett Pfaff and Bernays Kennedy; Capts. Carleton Buel McCulloch, Alois Bachman Graham, Charles Dolph Humes, Eugene Bishop Mumford, Lafayette Page, Harry F. Byrnes and Joseph Kent Worthington; Lieuts. Scott Robert Edwards, Ralph Landis Lochary, Raymond Cole Beeler, Robert Martin Moore, Leslie H. Maxwell, Paul Thomas Hurt, Smith Quimby, Ralph Lincoln Sweet, John Thomas Day, Joseph Warren Ricketts, Frank Columbia Walker, Jack Walter Scherer and James Vincent Sparks. The last two officers are dentists.

Base Hospital No. 34, attached to the Episcopal Hospital, Philadelphia, was called into active service, September 14, at Allentown, Pa. Following is a list of the medical personnel: Majors Ralph G. Devoe, Astley P. C. Ashhurst, Emory G. Alexander, John B. Carson; Capts. Ralph S. Bromer, R. I. Levin, John W. Moore, Henry G. Welker; Lieuts. Benjamin F. Buzby, Irvine M. Boykin, Royeal E. Durham, John S. Eynon, Lewis W. Frank, Rutherford L. John, John Paul Jone, John D. Paul, Raymond J. Sprowl, George Wilson, Karl D. Winter and John B. Wolfe; also Lieuts. George A. Coleman and Faver W. Croll of the dental section of the M. O. R. C.

Base Hospital No. 36, Detroit, has been mobilized at the State Fair Grounds.

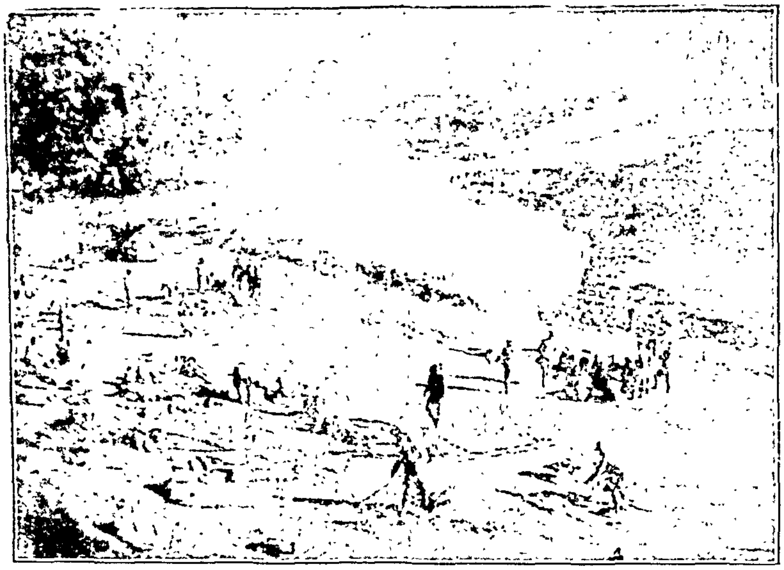
Members of Naval Base Hospital No. 5, recruited at the Methodist Hospital, Philadelphia, were ordered to report, September 12, to the Navy Yard in that city, for duty, and sailed, September 17, for France. This unit is under the directorship of Dr. Robert G. LeConte, Philadelphia. The members of Lieut.-Col. LeConte's staff are: Lieuts. William Hewson, J. Leon Herman, J. H. A. Cleaver and George E. Darby, Bella Bella, B. C. The officers of the unit are: assistant director, Lieut.-Com. James E. Talley, Lieuts. George G. Ross, B. B. Vincent Lyon, Grayson P. McCooch, Percival M. Kerr, Elwyn, and John A. Hugo.

NEWS OF THE TRAINING CAMPS

At Fort Benjamin Harrison

TRENCH WARFARE

The past week has been comparatively uneventful. There has, however, been one outstanding novelty in the week's program, in the assignment of details from each company for duty in the trenches. These have been dug by members of the Officers' Training Camp under the supervision of Lieutenant Haye of the French Army, and are most elaborate and realistic in construction. The trench details repair to their posts in the afternoon and prepare themselves for the night attack. When darkness comes on an opposing force attempts to take the trenches, to the accompaniment of sentry's challenges, illuminating rockets, and the other excitements of a night attack. After the attack the medical detail is supposed to go "over the top" with litters and collect the wounded, who are men previously detailed for the duty. They load them on the litters and carry them back to the regimental aid station in the trenches. The first night or two there was rain and mud in plenty, so that the elements did their best to help reproduce the conditions familiar in Flanders. The men came back to camp ready for a twenty-four hour sleep, some of them sheepishly confessing that they had been picked off by their own outposts, but all agreed that the experience was well worth the wounds and disability resulting from it.



The Bivouac at Fort Benjamin Harrison

REGULAR ARMY CANDIDATES

Candidates for the Regular Army Medical Corps who have taken their preliminary examinations have been grouped together in Companies 3 and 4, for the purpose of more intensive training and closer observation by the regular officers in charge. Some of them have already been detailed temporarily to ambulance companies and field hospitals, so as to give them the chance of studying the routine of these units at first hand. Major Darby, M. C., is conducting a most strenuous class in setting up exercises for their exclusive benefit, comprising body-rolls, somersaults, and other acrobatic feats.

LECTURES

There have been no lectures of importance during the week except for one by Major Bell of the Canadian Army on his experiences during nine months of trench warfare on the western front. Much of this time was devoted to answering questions, though his audience would have been delighted to hear him talk for an extra hour or more.

MEETING OF MILITARY SURGEONS

Colonel Ashburn announced to the assembled student officers that there is to be a meeting of the Association of Military Surgeons in Indianapolis on October 8 and the two following days. Some of the program was outlined, and the cooperation of every one was asked in making the meeting a roaring success. The country-wide fame of some of the expected visitors is of itself sufficient to make it a memorable occasion, and it is sincerely hoped that there will be a good turn-out of the profession to hear the speakers.

THE CAMP VIEW OF DRAFTING THE MEDICAL PROFESSION

Some animated discussion has been provoked in this camp by the appearance in the last issue of The Journal of a letter written by Major Richard Derby, M. R. C. He states that "a fair proportion of the physicians who have volunteered are men who have been attracted to a new life through a failure to succeed in their old," and again that "we have not obtained through the volunteer system the men best qualified for the important duty of caring for our sick and wounded." As applied to the personnel of this training camp, at least—and there is no evident reason why this camp should differ in this respect from the other Medical Officers' Training Camps in the country—such statements would seem, to say the least of it, distinctly unjustifiable. While it is true unfortunately that the average age is high, and that therefore there is evidently a lack of younger volunteers, the vast majority of the older men in training are men highly respected in their communities, who have made considerable sacrifices to follow what they considered to be the path of duty. Furthermore, if a comparison were drawn between the sum of those men who now hold commissions in the Medical Reserve Corps, or are continuing in civil life only because their services are more valuable to the country in their present capacity, and the sum of those who are taking no active part in the country's program of medical preparedness, who could then say that the pick of the country's physicians is not already in the country's service?

COMPANY NEWS AND PERSONAL

Major F. W. Loughran, M. R. C., assistant sanitary inspector, has left for New York on leave of absence.

Capt. R. M. Wilder has returned from his leave of absence, and is again at his desk in the Adjutant's Office.

Capt. Richard Weil ordered to the Rockefeller Institute.

The total strength of the training camp in medical officers alone is now 1,275.

Company 1 gave a banquet on Wednesday, September 19, at the University Club, Indianapolis, in honor of their chief instructor, Captain Celler. Eighty of the old members were present. The old company has been broken up and distributed among the other old companies. Many of the men are candidates for the regular corps. A new company has been formed this week, with Captain Celler still in command. He is to be assisted by Capt. S. J. Young and Lieuts. H. S. Osborne, V. C. von Unruh and Roy T. Morris. Lieutenant von Unruh has also been appointed assistant to Major Snyder in the teaching of equitation. The company is now under the direct supervision of Colonel Shockley, M. C.

Company 2 has lost Lieutenant Bayless from its corps of instructors. His place has been taken by Captain Stanton.

Company 7 has added Lientenant Hoyt to its instructing staff, by transfer from Company 1.

Company 8 has lost Major Caccini, its chief instructor. His place has been taken by Major Phillips.

Company 10 now has Major McCormack, M. C., in immediate command.

THE BIVOUAC

Several of the companies, through the kidness of Capt. F. Hutchins, Company 4, have had the privilege of enjoying a night's bivouac in the prettiest section of the surrounding country. During the day's trip the men were assigned problems in sanitary tactics, including choice of locations for ambulance companies, with their respective field dressing stations, and for the establishment of a field hospital, the disposition of the defending and attacking forces having been previously announced. The work is shown in the accompanying illustration.

FOR THE CONTROL OF VENEREAL DISEASES

At Jackson, Mich., September 12, a conference of men and women, prominent in business and professional life in the state, was held for the purpose of considering the menace of venereal diseases in relation to the public health. Dr. C. G. Parnall, health officer of Jackson, in explaining the purpose of the meeting said that any movement designed to attack the problem must take cognizance of two main features: the prevention of venereal diseases in the Army and the control of these diseases in the civil population. Addresses were made among others by Dr. W. H. Martin, associated with Major Snow, in charge of venereal disease work in the United States Army; Avery G. Clinger, stationed at Battle Creek Cantonment as head of the War Department Commission on training Camp Activities; Major Neil M. Wood, head of the base hospital at Camp Custer; Dr. A. S. Warthin, head of the department of pathology of the University of Michigan; Dr. J. H. Kellogg of Battle Creek and Dr. Richard Olin, secretary of the state board of health. A tentative program was outlined for the prevention of venereal diseases involving the following propositions:

PROGRAM FOR THE PREVENTION OF VENEREAL DISEASES

1. *Prostitution* is to be suppressed vigorously and continuously, through the enforcement of the State laws, and the issuance of certificates of health to prostitutes for use in soliciting is not to be included in this program.

2. Prostitutes brought to the attention of the police or health authorities are to be examined; and all persons, male or female, capable of spreading venereal disease are to be isolated, under the provisions of the public health act, or local ordinance, and treated at public expense as long as there is danger in the opinion of the health officer, of their *exposing others*.

3. Under no circumstances are infected prostitutes to be "floated" into other communities, and if they are known to go from one community *to another*, the health officials of the place of destination are to be notified at once.

4. The State law requiring the reporting of syphilis and gonococcus *infections* by physicians, office numbers, is to be enforced to the letter, and, in addition, physicians are to be urged to obtain and furnish to the local health officers the names of the persons who are suspected of *disseminating infection*. The local health officers are therefore to investigate and supervise or isolate infection cases according to the circumstances.

5. To provide and encourage the instruction of young men and women in the advantages of a clean life and the dangers from venereal disease.

6. To provide adequate opportunities for expert diagnosis, treatment and advice for infected persons financially unable to secure proper attention for themselves, and to encourage the *continuance of treatment* until the patient is cured, or at least becomes noninfectious.

7. To provide free laboratory tests for syphilis and gonococcus infections for *physicians, and to encourage* greater use of the tests for these diseases available at the laboratory of the Bureau of Communicable Diseases of the State Board of Health.

A permanent committee to carry on the work was appointed as follows: Dr. W. H. Sawyer, Hillsdale; Miss Eleanor Hutzell, Detroit; Rev. Caroline Bartlett Crane, Kalamazoo; Dr. A. S. Warthin, Ann Arbor; Fred L. Woodworth, state dairy and food commissioner, Lansing; Dr. C. G. Parnall, Jackson; Dr. R. M. Olin, secretary of the state board of health, Lansing; Rev. Charles D. Williams, Detroit, and Mr. James Couzens, Detroit.

By a resolution Governor Sleeper was asked to appoint a commission to make recommendations for the control of venereal diseases within the state. On this commission the governor later appointed the following: Drs. R. M. Olin, Lansing; W. H. Sawyer, Hillsdale; A. S. Warthin, Ann Arbor; C. G. Parnall, Jackson, and Guy L. Keifer, Detroit. This commission met with Governor Sleeper at Lansing, September 18. The chief features of the immediate program outlined at that meeting include the investigation of the source of the infection, the segregation and hospital treatment of all infected prostitutes and the development of hospitals for such treatment.

PUBLIC HEALTH SERVICE RESERVE CORPS

It is quite probable that Congress will enact a law providing a reserve corps for the Public Health Service, a subject already referred to in these columns. The original measure, a Senate Joint Resolution, which had the approval of the Public Health Service and the Treasury Department, passed the Senate and was referred to the Committee on Interstate and Foreign Commerce of the House. This committee has already reported, recommending the measure in the form of a bill; and while the committee has made some modifications they are not seriously in conflict with Senate's measure. The House substitute covers most of the essential features of the original measure as passed by the Senate, so that if it passes the House, which now seems extremely probable, it will undoubtedly be approved by the Senate.

The bill provides for a reserve corps to be composed of the officers of state, county and municipal health organizations, and other persons skilled in sanitary science. Such officers must make voluntary application to the Surgeon-General for appointment, and, with the assent of the proper executive officers of the respective states, counties and municipalities, may be commissioned with the grade of assistant surgeons, past assistant surgeons, surgeons, or senior surgeons in the Reserve Corps of the Public Health Service for four years, or during the war. Sanitary engineers, assistant sanitary engineers, epidemiologists and assistant epidemiologists on the recommendation of the Surgeon-General, may also be commissioned as such. The duties of the reserve corps shall be directed toward the proper sanitation of ports and places within the United States or within its jurisidiction, especially places in which or near which industrial and military forces are to be mobilized, in which the corps shall cooperate with local health organizations and officials in charge of industrial establishments. The bill provides for an elastic organization which may be immediately expanded, whereby the government can instantly attack civilian epidemics which threaten to spread to military forces, which permits sanitation under federal direction of areas in contiguity to military camps, augments existing agencies for the collection of morbidity reports, and brings into the service of the United States as an aid to military operations a body of highly trained sanitarians, engineers and epidemiologists who would otherwise be unavailable for military duty.

SURGEON-GENERAL'S OFFICE REQUESTS INFORMATION ON REHABILITATION OF THE INJURED

The Surgeon-General's Office has addressed a letter to the secretaries of all county medical societies relative to the rehabilitation of partially handicapped persons who have been successful following injury. Arrangements are being made for special treatment for the wounded, including special efforts for functional restoration of damaged parts and vocational reeducation for those who, from the nature of their illness or injury, are unable to follow their previous occupation.

INFORMATION REGARDING SUCCESSFUL CRIPPLES

To aid in this work the Surgeon-General desires to know what those who are suffering from chronic illnesses or who are partially disabled as a result of injuries, are now doing. For example, a person who has lost the right hand may still be a successful carpenter or market gardener; one having lost both lower extremities may be successful in some line in which he is not required to move from place to place; a man with chronic heart disease may be suitably occupied in work in which there is no special stress on that organ. The collection of this experience should be of remarkable assistance as showing what the various types can do.

The Surgeon-General requests that medical societies and physicians aid in this work by securing a list of partially disabled persons in the county who are successfully following trades or occupations. The information desired in reference to each case should include: (*a*) character of disability, medical or surgical; (*b*) the work at which the patient is employed, and degree of success; (*c*) the way in which he learned or entered his occupation after his injury or illness. The names of the disabled are *not* necessary.

If any man who has been successful after an injury or illness desires to write a short autobiography stating his experience, this will be very useful and will be utilized in preparing a booklet to be distributed to the men at the proper time.

EXEMPTION OF MEDICAL STUDENTS AND INTERNS

Provision for Permitting Medical Students Who Have Been Accepted for the Draft to Continue Their Professional Studies

In accordance with the supplemental regulations authorized by the President, the Surgeon-General of the Army has approved the following forms which are to be filled out and returned to him. This should be done without delay. It must be understood that medical students permitted to continue their studies under these provisions are not exempted and may be called to duty at any time that the President deems their services especially needed by the Army.

AFFIDAVIT OF DEAN AND STUDENT

The dean or secretary will make his affidavit and send it to the student accepted for the draft, who will make his affidavit and forward both affidavits with a copy of the order of the local board calling him to report for physical examination (Form 103), to the Surgeon-General of the Army, Washington, D. C. Affidavits must be executed by some one legally qualified to administer an oath.

AFFIDAVIT OF THE DEAN OR SECRETARY OF THE MEDICAL SCHOOL

I, ..., Dean of .... Medical School, do swear that the official records of this school show that .... entered this school ...., ..., and that he has successfully done the
Mo. Yr.
work of his class.

....

Date ....

Subscribed and sworn to before me this .... day of ...., A. D. 1917.

....

AFFIDAVIT OF THE STUDENT ACCEPTED FOR THE DRAFT

I, ..., having been accepted for the draft by local board .... am a student in ....
second
.... Medical School in the third year, having entered said
fourth
school ...., ...
Mo. Yr.

I hereby apply to the Surgeon-General of the Army to be ordered to report at once to my local board for military duty and thus to be inducted into the military service of the United States, immediately thereupon to be discharged from the National Army for the purpose of enlisting in the Enlisted Reserve Corps of the Medical Department. I have been called by local board ...., physically examined and accepted, and there is no claim for my exemption or discharge now pending and I have not been ordered to military duty. In compliance with the supplemental regulations governing the execution of the Selective Service Law authorized by the President and issued under date of August 29, 1917, I am making this application and am enclosing herewith a copy of the order of the local board calling me to report for a physical examination (Form 103).

I do hereby pledge myself to enlist in the Medical Enlisted Reserve Corps and to promptly respond either before or after my graduation on an order from the Surgeon-General to active duty.

....

Date ....

Subscribed and sworn to before me this .... day of ...., A. D. 1917.

....

AFFIDAVIT OF THE MEDICAL STUDENT WHO HAS BEEN ACCEPTED FOR THE DRAFT, AND IS NOW ON ACTIVE DUTY IN A CANTONMENT OF THE NATIONAL ARMY

I, ..., having been accepted for the draft by local board ...., am a student in
second
.... Medical School in the third year,
fourth
having entered said school ...., ...
Mo. Yr.

I hereby apply to the Surgeon General of the Army to be ordered to be discharged from the National Army for the purpose of enlisting in the Enlisted Medical Reserve Corps of the Medical Department. I have been called by local board ...., physically examined and accepted, and am now in active service in the National Army at Camp ...., located at ....,
City
.... In compliance with compiled rulings No. 11 of
State
Provost Marshal General, Part 1 (Z), I am making this application and am enclosing herewith a copy of the order of the local board calling me to report for a physical examination (Form 103).

I do hereby pledge myself to enlist immediately in the Medical Enlisted Reserve Corps and to promptly respond either before or after my graduation to an order from the Surgeon General to active duty.

....

Date ....

Subscribed and sworn to before me this .... day of ...., A. D. 1917.

....

Provision for Permitting Hospital Interns Who Have Been Accepted for the Draft to Temporarily Continue Their Professional Duties

In accordance with the supplemental regulations authorized by the President, the Surgeon-General of the Army presents the following form to be filled out and returned to him. This should be done without delay. It should be understood that hospital interns permitted to continue their hospital duties under these provisions are not exempted from the draft and may be called to duty at any time that the President deems their services especially needed by the Army. The spirit of the supplemental regulations issued by the President does not permit the recognition of an internship continuing more than twelve months.

The superintendent of the hospital will execute his affidavit, ask the drafted intern to fill out his and return both affidavits with a copy of the order of the local board calling him to report for physical examination (Form 103), to the Surgeon-General of the Army, Washington, D. C. Affidavits must be executed by some one legally qualified to administer an oath.

AFFIDAVIT OF THE SUPERINTENDENT OF THE HOSPITAL

I, ..., do swear that I am Superintendent of .... Hospital located at ...., ..., and that ....
City State
..............................., M.D., is a bona fide intern in this hospital, devoting his entire time to his intern work and receiving therefor no compensation; that I regard his continuance in this position as essential to the best interests of this hospital; that the daily average number of patients in this hospital is ...., and that the number of interns in this hospital is ....; that the drafted intern herein specified began his internship ....,
Month
........., ..., and it naturally terminates ....,
Day Year Month
................., ...
Day Year

....

Date ....

Subscribed and sworn to before me this .... day of ...., A. D. 1917.

....

AFFIDAVIT OF THE DRAFTED HOSPITAL INTERN

I, ..., having been accepted for the draft by local board .... am an intern in .... Hospital located at ...., ... I
City State
graduated from .... Medical School ...., ... I began my internship in this hospital
Mo. Yr.
...................., ..., ..., and my term of service
Mo. Day Yr.
expires ...., ..., ...
Mo. Day Yr.

I hereby apply to the Surgeon-General of the Army to be ordered to report* at once to my local board for military duty and thus to be inducted into the military service of the United States, immediately thereupon to be discharged from the National Army for the purpose of enlisting in the Enlisted Reserve Corps of the Medical Department. I have been called by local board ...., physically examined and accepted, and there is no claim for my exemption or discharge now pending and I have not been ordered to military duty. In compliance with the supplemental regulations governing the execution of the Selective Service Law authorized by the President and issued under date of August 29, 1917, I am making this application and am enclosing herewith a copy of the order of the local board calling me to report for a physical examination (Form 103).

I do hereby pledge myself to enlist in the Medical Enlisted Reserve Corps and to promptly respond at any time to an order from the Surgeon-General to active duty.

....

Date ....

Subscribed and sworn to before me this .... day of ...., A. D. 1917.

....

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* This report may be made in person, by mail or by telegram.

Physicians Recommended for Commission in the Reserve Corps

During the week ending Sept. 22, 1917, 709 physicians were recommended for commission in the Medical Reserve Corps, the proportion being thirteen majors, eighty captains and 616 lieutenants.

Physicians Go to Join Staff of American Hospital in Paris

At the request of Dr. Joseph A. Blake, Dr. J. B. McCook of Hartford, Conn., and Dr. W. Irving Clark of Worcester, ss., will be sent to the American Red Cross Hospital in is.

Medical History of the War

Col. C. C. McCulloch, M. C., U. S. Army, and Major Fielding H. Garrison, M. R. C., U. S. Army, have been constituted a board to collect and prepare material for a medical and surgical history of the war.

Red Cross Commission to Russia Returns

The major portion of the Red Cross Commission to Russia is now in Japan on its way back to this country and is expected home about October 20. It is announced that Mr. Raymond Robins of Chicago is to remain in Russia and, in addition to his work as director of the Red Cross, will supervise the four principal relief organizations.

Statistics of the Dental Corps

The Surgeon-General's Office has completed the enrolment of, and now has at its disposal, 178 Dental Corps officers, 221 National Guard dental officers, and 2,473 Dental Reserve Corps officers, making a total of 2,872, or enough to supply in the proportion of one dentist to 1,000 men, as authorized by law, an army of 2,872,000 men. No more dental officers will, therefore, be required in the immediate future.

Doctors and Nurses Decorated

Justine Godart, undersecretary for the Army Medical Service, on September 15, visited the Chateau in the department of Yonne where the French Hospital of New York has conducted a military hospital of 250 beds since early in 1916. Decorations were conferred on Drs. John C. Irwin and Thomas M. Savage, and on nine of the nurses on duty in the institution.

Second Infant Welfare Unit Goes to France

The American Red Cross announces that Dr. Charles Ulysses Moore of Portland, Ore., has been sent to France to reenforce the Infant Welfare Unit now at work there under the direction of Dr. William P. Lucas of the University of California. With Dr. Moore will go sixteen nurses who have had special training in children's diseases and socal welfare work. A third detachment of physicians for this service is expected to sail shortly.

Red Cross Commission to Roumania Goes to Jassy

According to cable advices, the American Red Cross Commission to Roumania left Petrograd last week for Jassy. Conference with Ambassador Billings, minister to Roumania, revealed the fact that immediate supplies, including medical equipment of every kind are badly needed. Wounds are now being dressed with sawdust. An urgent need also exists for ambulance transports with drivers and machines. A typhus epidemic threatens for the winter.

Public Health Nurses to Work in Region of Cantonments

Fifty public health nurses have been assigned for duty by the American Red Cross to the zones around the various cantonments. Nurses have already taken up their work in the civil districts around the cantonments at Hattiesburg, Miss.; Fort Riley, Kan.; Des Moines, Iowa; Louisville, Ky.; Little Rock, Ark.; Ayer, Mass.; Chillicothe, Ohio; Atlanta, Ga.; Newport News and Petersburg, Va. These nurses will act as visiting nurses in the territory surrounding the camps and will endeavor to prevent the spread of tuberculosis, malaria and social diseases, and to strengthen the local infant welfare programs.

Appropriations for Sanitary Units

September 16, it was announced by the National Red Cross that appropriations had been made to assist local authorities in protecting health about Army camps as follows: for Newport News, Va., $21,000 was provided; $5,000 for three nurses to work with the Massachusetts Health Department at Ayer; $14,000 to Atlanta, Ga., chiefly for the destruction of malaria-bearing mosquitoes around Camp Gordon; $10,000 for Chillicothe, Ohio. In all $106,000 has been appropriated.

Germans Agree Not to Attack Hospital Ships

A dispatch to Paris from Madrid states that King Alfonso has obtained from the belligerent powers an agreement permitting the free movement of French and British hospital ships in the Mediterranean and the Atlantic as far as the English Channel. This agreement also provides for the removal from French hospital ships of German officers who have been held prisoners thereon, and the removal of French prisoners from exposed positions on the war front.

Sanitary Unit Established

P. A. Surg. Joseph R. Ridlon, U. S. P. H. S., has announced that a provisional allotment of $10,000 has been made for the sanitary unit of the American Red Cross at Anniston, Ala., and the unit has been established with Emmett W. Ledbetter as business manager and Dr. Ridlon as director. Work has already been begun at the task of making mosquito-proof the area adjoining Camp McClellan. A laboratory will be established in Anniston which may be used by any physician in the city or county for the examination of specimens.

American Public Health Association to Hold Special War Meeting

War and its relation to public health will be the chief topic at the meeting of the American Pubic Health Association, Washington, D. C., October 17 to 20. Papers are to be presented by President W. A. Evans, Chicago; Surgeons-General Gorgas and Braistead; Colonel Goodwin of the British Army, and others. Special symposiums will be devoted to the control of venereal diseases in the Army and Navy, and to laboratory service in war time.

Making of Comfort Kits

The American Red Cross has issued circulars, which can be obtained on application at any Red Cross chapter, relative to the making of comfort kits and bags for the men of our Army and Navy. The circular embodies the suggestions of the War Department, of General Pershing and of Major Grayson M. P. Murphy, as to what the men wish. Three types of kits are suggested: a simple bag with drawstrings and two bags with pockets, one for the trenches and one suitable for hospital use. These kits are to be made of plain khaki.

Conference of Presidents of the Examining Boards Called to Meet at Fort Benjamin Harrison

Capt. George W. Kreider, M. R. C., has called a meeting of the officers and members of the various examining boards for the Medical Reserve Corps to take place at Fort Benjamin Harrison, Monday, October 8, at 11 a. m. This conference has the endorsement of the Surgeon-General, and Dr. Kreider states that already nearly one half of the boards have responded favoring the conference at that time. Important subjects relative to the work will be brought before this conference.

Medical Patriots of Rochester, N. Y.

Major John M. Swan, M. R. C., writes that the item *in* The Journal for September 22, page 1014, relative to St. Louis' contribution to the Medical Reserve Corps, leads him to send the following facts relative to the contribution of Rochester: "Fifty-five physicians have been examined and have accepted commissions in the Medical Reserve Corps, or are on duty with the Second Ambulance Company, N. G., N. Y.; Third Regiment, N. G., N. Y., now the 112th Infantry, National Army, or the New York Naval Militia. There are about 415 physicians in Rochester, which makes the percentage of Rochester physicians in the service of the government, at the present time, or who have accepted their commissions and stand in readiness to obey any order, 13.1 per cent."

Reconstruction Hospital Plans

It has been decided by the Army Medical Department to erect in Boston, New York, Philadelphia, Baltimore, Washington, Buffalo, Cincinnati, Chicago, St. Paul, San Francisco, Los Angeles, Denver, Kansas City, St. Louis, Memphis, Tenn.; Richmond, Va.; Atlanta and New Orleans, reconstruction hospitals wherein will begin a rehabilitation for private life, of soldiers who return wounded from the war front. Sites have already been chosen and it is probable that Boston, New York, Washington and Chicago will be the first cities to establish these hospitals. Each hospital will accommodate 500 patients with provision for doubling the capacity if necessary. In these institutions industrial training will be taken up and additional educational facilities will be furnished to those fitted for them. Workshops and employment bureaus will also be established for the benefit of these disabled soldiers.

Sanitary Supervision of Army Clothing Production

The production of army clothing on a tremendous scale has permitted abuses to creep in in the way of the production of such clothing in unsanitary surroundings and conditions, as the business has been farmed out by contractors and subcontractors in sweat shops and in homes. Objectionable conditions were found by the New York Child Labor Committee in instances in which the work had been given out to be done in homes, in which dangerous sanitary conditions existed and small children were found working in violation of the law. To meet the situation Secretary of War Baker appointed a board of control of labor standards, consisting of Louis E. Kirstein of Boston, Mrs. Florence Kelley, secretary of the National Consumers League, and Capt. Walter E. Kreusi of Quartermaster's Department, U. S. R. They are charged with taking such steps that the Quartermaster-General will be enabled to enforce the maintenance of sound industrial and sanitary conditions in the manufacture of army clothing, to inspect factories, to see that proper standards are established in government work, to pass on the industrial standards maintained by bidders on army clothing and to act so that just conditions prevail.

Physical Disqualification for Military Service in Italy

The Italian war department has recently issued a new official set of regulations as to the physical disqualifications for army service. The list as published recently in our Naples and Milan exchanges contains eighty-six clauses, besides a separate list of infirmities which exempt the recruit from active war service but permit him to serve on light duty, the sedentary service as it is called. One clause of the regulations provides that a register of these relatively disqualified men is to be kept at all the mobilization centers, and these men are to be called on for the sedentary service. No one is to be placed permanently on the sedentary force except those excluded by the specified infirmities from the active fatiguing war service. There has been considerable talk in Italy of late because hitherto hernia has exempted men from military service. One member of parliament, in discussing the matter recently, urged compulsory operations on men with hernia, saying that a simple operation of this kind would give the country 100,000 new and valid recruits. The new regulations alter this, as hernia now does not exclude absolutely from military service unless the hernia cannot be reduced and kept under control with suitable apparatus. It comes in the list of the infirmities permanently placing the man in the sendentary service, except what are called "button hernias." By these new arrangements, hernia no longer exempts from service but holds the man back in the sedentary service. It is optional for him, however, of course, . . . although, naturally, this is not mentioned in the *Elenco* . . . it is optional for him to have his hernia corrected by an operation which would advance him into the active ranks. Among the seventeen other infirmities which class the man permanently as fit only for the sedentary service, are facial paralysis, large and knobby hydrocele, varicocele or systocele, one leg from 3 to 5 cm. shorter than its mate, habitual dislocation of a joint, and permanent dislocation of one thumb or big toe or loss of one big toe. The *Elenco* specifies further in regard to hernia and some of the other infirmities that they are not to be classified until after the man has been under observation in a military hospital.

Orders to Officers of the Medical Corps

Lieut.-Col. G. F. Juenemann, M. C., to Gettysburg, Pa., American reorganization camp, for duty.

Lieut.-Col. E. H. Hartnett, M. C., will report in person to C. O., Western Dept., for duty.

Major J. S. Lambie, Jr., M. C., to Philadelphia, Pa., for duty as C. O. of Base Hospital No. 38, Jefferson Hospital, Philadelphia.

Major P. Waterman, M. C., to 26th Division as director of ambulance companies, with station in Boston.

The retirement of Col. G. E. Bushnell, M. C., from active service on Sept. 10, 1917, is announced.

Officers of M. C. to duty as follows: Lieut.-Col. J. W. Hanner to Camp Devens, Ayer, Mass., *76th Division*, as chief surgeon; Lieut.-Col. S. J. Morris to Walter Reed General Hospital; Major John A. Burket to Camp Sherman, Ohio, 83d Division; Major L. P. Williamson from Ayer, Mass., to Washington in connection with the division of gas defense; Major D. W. McEnery to Camp Dix, N. J., 78th Division, as division sanitary inspector; 1st Lieut. R. B. Hill from 2d Regiment of Engineers, American University, to 20th Engineers.

Lieut.-cols. of M. C. to duty as follows: W. H. Moncrief to Washington; G. McD. Van Poole to Fort B. Harrison; M. A. W. Shockley and H. F. Pipes to Fort B. Harrison.

Majors of M. C. to the place specified for duty: T. H. Johnson, Philadelphia, Pa., No. 20, University of Pa. Hospital; A. von Schrader, Albany, N. Y., No. 33, Albany Hospital and Medical College.

Major E. G. Bingham, M. C., to duty as C. O. of base hospital and as commandant of medical officers' training camp at Fort Des Moines.

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Camp Beauregard, Alexandria, La., for duty, Lieut. R. Jackson, Birmingham.

To Camp Sheridan, Montgomery, Ala., in the ophthalmic division, section surgery of the head, Capt. C. A. Tipgen, Montgomery; as chief of medical service, Lieut. J. S. McLester, Birmingham.

To Fort Oglethorpe for a course of instruction, Lieuts. Andrew L. Glaze, Jr., Athens; Lucius L. Terry, Solon W. Wright, Bessemer; Rufus Jackson, M. Rogers, Birmingham; Beaman S. Cooley, Boaz; W. Theo. Langley, Camp Hill; William S. Sewell, Center; Moses E. Sherer, Childersburg; Joseph T. Banks, Dadeville; Conrad Wall, Forest Home; Thomas Y. Greet, Gadsden; Horace Van de Voort, Gastonburg; Austin F. J. Boyd, Hamburg; Francis G. Hendrick, Huntsboro; Charles W. Brasfield, Linden; Howard P. Rankin, Midway; Frederick W. Wilkerson, Montgomery; Otis W. Little, James D. Perdue, Mt. Vernon; Edward C. Hagler, Northport; John F. Jenkins, Opeliker; James P. Vansant, Piedmont; Zadoc L. Weatherford, Red Bay; Julius F. Peavy, Jr., Robertsdale; Richard B. McCann, Seale; Edmond R. Lett, Tallassee; William C. Hatchett, Toney; James W. Beard, Lucian M. Tompkins, Troy; Maxwell Moody, James H. Somerville, Jr., Tuscaloosa; William M. Pierce, Tuscumbia; Bryant B. Edwards, Union Springs, and Walter E. Allen, Ward.

To Walter Reed Hospital, Washington, for treatment, Lieut. H. L. McWhorter, Collinsville.

ARIZONA

To Camp Logan, Texas, for duty in division of ophthalmology, section of surgery of the head, Capt. A. R. Warner, Komatke.

ARKANSAS

To Camp Pike, Ark., for duty, Lieut. F. L. Castleberry, Little Rock.

CALIFORNIA

To Camp Dodge, Iowa, for duty in the division of ophthalmology, section of surgery, Lieut. W. J. Hosford, Santa Cruz.

To Camp Doniphan, Ft. Sill, Okla., for duty, Lieut. A. E. Edgerton, Stockton.

To Camp Funston, Ft. Riley, Kan., from Gas School, Ft. Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Capt. Rutherford B. Irones, San Diego.

To Camp Kearny, Linda Vista, Calif., for duty as chief of division of otolaryngology, section of surgery of the head, Capt. R. S. Anthony, Los Gatos; for duty with 40th Division National Guard, Lieuts. G. Hoskins, Ferndale; W. D. Rolph, Riverside; C. L. Morris, Santa Barbara; and G. H. Sciaroni, Sutter Creek.

To Camp Logan, Houston, Tex., from Gas School, Ft. Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Capt. Fred. F. Sprague, Los Banos.

To Camp Mills, Garden City, N. Y., 42d Division, for duty, Lieut. A. H. Martin, Courtland.

To Camp Travis, Tex., for duty, Major H. C. Moffitt, San Francisco.

To Fort McDowell, Calif., for duty, Lieuts. W. J. Haber, and J. F. Chapman, San Francisco.

To Houston, Tex., Av. School, for duty, Capt. L. F. Luckie, Los Angeles.

To report in person to commanding general Western Department, for duty, Capt. E. L. Wemple, San Francisco; Lieuts. G. P. Tolman, Sacramento; and L. G. Seidenfeld, San Francisco.

COLORADO

To Camp Doniphan, Okla., for duty in division of ophthalmology, section of surgery of the head, Capt. A. C. Magruder, Colorado Springs; from Gas School, Ft. Sill, Okla., and report to commanding general for duty as instructor in gas defense, Lieut. William M. Bane, Denver.

To Fort Benjamin Harrison for a course of instruction, Lieut. Orion A. Grantham, Johnstown.

To Fort Oglethorpe, for a course of instruction, Lieut. Harry B. Sobernheimer, Meeker.

To Linda Vista, Calif., for duty in division of ophthalmology, section of surgery of the head, Lieut. F. N. Stiles, Grand Junction.

To San Francisco, Calif., for duty, Capt. W. A. Jones, Denver.

CONNECTICUT

To Camp Bartlett, Westfield, Mass., for duty, Lieut. W. F. Collins, New Haven.

To Camp Mills, Garden City, N. Y., 42d Division, for duty, Lieut. F. C. Young, Colchester.

To Fort Benjamin Harrison, for duty, Capt. L. I. Mason, Willimantic.

DISTRICT OF COLUMBIA

Camp Lewis, American Lake, Wash., *for duty as chief of the* service, Lieut. C. S. White, Washington.

Camp Sheridan, Montgomery, Ala., for duty, Lieut. J. L. Gariss, ashington.

To Fort Oglethorpe for a course of instruction, Lieuts. Charles Bell, and John H. Digges, Washington.

FLORIDA

To Camp McClellan, Anniston, Ala., from Gas School, Ft. Sill, Okla., and report in person to the commanding *general for duty as* instructor in gas defense, Lieut. George G. Tillman, Barton.

To Camp Sevier, S. C., for duty in division of ophthalmology, section of surgery of the head, Capt. J. Halton, Sarasota.

To Camp Taylor, Louisville, Ky., *from Gas School*, Ft. Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Lieut. Lester J. Efird, Tampa.

To Fort Oglethorpe, for a course of instruction, Capt. Joseph N. Fogarty, Key West; Lieuts. Joseph H. Chirles, Clearmont; Henry F. Parnell, Ft. Myers; William E. Whitlock, Ft. White; Charles L. Kennon, Elijah T. Sellers, Jacksonville; Hugh St. C. Geiger, Kissimmee; Dwight D. Rivers, Lake City; Archie C. Watson, Live Oak; Adam C. Walkup, McIntosh; James R. McEachern, Monticello; Harold M. Beardall, Orlando; John C. Holley, Pace; MacMiller Harrison, Palmetto; Baldwin S. Stutts, Pt. St. Joe; Daniel B. Williams, South Jacksonville; William J. Lancaster, Tampa; from Gas School, Ft. Sill, Okla., and report to the commandant, Medical Officers' Training Camp, for duty as instructor in gas defense, Richard Leffers, Lakeland.

To Syracuse, N. Y., for regimental duty, Capt. H. F. Watt, Ocala; Lieuts. W. H. Pickett, Gainesville; A. L. Izlar, Ocala; and J. W. McClane, St. Petersburg.

GEORGIA

To Camp Gordon, Ga., for duty in the division of ophthalmology, section of surgery, Capt. R. R. Daly, Atlanta.

To Fort Oglethorpe, for a course of instruction, Lieuts. Cecil Stockard, James R. Smith, Atlanta; Henry D. Coffee, Auburn; David M. Silver, Augusta; Joseph E. Mercer, Baxley; Philip G. Fitzgerald, Blakely; A. Nathan Dykes, Columbus; Whitfield W. Crook, Cuthbert; Leslie L. Blair, Marietta; Carl H. Verner, Martin; Homer G. Lightner, Montezuma; Hugh W. Wade, Quitman; Burton P. Bradley, Joseph H. Mull, Rome; George L. Fuguary, Savannah; John C. Call, Sylvania, Robert C. Walker, Waycross; and John W. Bradley, Woodstock.

HAWAII

To Fort Kamehameha, H. T., from Ft. Ruger, H. T., for duty as post surgeon and surgeon of the Coast Defense of Oahu, Major E. W. Bayley, Ft. Ruger.

To Fort Oglethorpe, for a course of instruction, Major Harry R. McKellar, Ft. Shafter.

ILLINOIS

To *Camp Custer*, Mich., from Fort Benjamin Harrison, for duty as chief of medical service, Major E. E. Irons, Chicago.

To Camp Devens, Mass., for duty in the division of ophthalmology, section of surgery, Lieut. W. G. McDeed, Monticello.

To Camp Grant, Rockford, Ill., from Gas School, Fort Sill, Okla., *and report to the commanding general for* duty as instructor in gas defense, Capt. John S. Sweeney; for duty in the division of ophthalmology, section of surgery, Lieuts. H. S. Cradle; for duty, F. M. Phifer, Chicago.

Logan, Texas, for duty in division of ophthalmology, sec-
of the head, Lieut. J. F. Strauss, Chicago.
Ark., as chief of medical service, Major A. A. Small,

Miss., for duty in division of ophthalmology, sec-
the head, Lieut. C. M. Wilmot, Spear.
Chillicothe, Ohio, Base Hospital, as surgical chief,
Chicago; as C. O. of Red Cross Ambulance Co.
; with Red Cross Ambulance Co. No. 9, Lieuts
and J. E. McNeel, Chicago.
, Ky., Eighty-Fourth Division, for duty, Capt. F. S.
; for duty as chief of medical service, Lieut. W. W.

Harrison, for a course of instruction, Capt.
Edwardsville; Lieuts. Ira J. Magee and Thaddeus
For duty with Base Hospital No. 36, Lieut.

Iowa, for duty, Lieut. L. C. Gatewood, Chicago.
H. T., from Schofield Barracks, for duty,
Fairbury.
, from Fort Riley, and report in person to the
Shelby, for duty, Lieut. Alexander W.

To Fort Sheridan, Ill., for duty, Lieut. K. J. Henrichsen, Chicago.

To Jefferson Barracks, Mo., for duty, Lieut. S. Horwitz, Peoria.

To Neurological School, University of Pennsylvania, for a four weeks' course of *intensive training in brain surgery*, Lieut. George H. Schroeder, Chicago.

To report to commanding officer, Ambulance Co. No. 9, for duty, Lieut. J. P. Cleary, Chicago.

To Syracuse, N. Y., for regimental duty, Lieut. C. W. Shaffer, Chicago.

To Waco, Texas, Aviation School, for duty, Lieut. E. C. Gaffney, Lincoln.

INDIANA

To Camp Custer, Battle Creek, Mich., for duty, Lieut. T. I. Padgett, Jasonville.

To Camp Dix, N. J., *for duty in the division* of ophthalmology, section of surgery, Lieut. G. G. Van Mater, Peru.

To Camp Funston, Fort Riley, Kan., Lieut. R. C. Shanklin, South Bend.

To Camp Green, Charlotte, N. C., from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Capt. Leonard A. Ensminger, Indianapolis.

To Camp Shelby, Hattiesburg, Miss., from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Lieut. James A. Work, Elkhart.

To Camp Sheridan, Montgomery, Ala., from Gas School, *Fort Sill*, Okla., and report *in person to the commanding* general for duty as instructor in gas defense, Lieut. Oliver O. Alexander, Terre Haute.

To Fort Benjamin Harrison, for a course of instruction, Lieut. Joseph A. Graham, Hammond.

To Fort Oglethorpe, for a course of instruction, Lieut. Edwin W. Rodengeiser, Indianapolis.

IOWA

To Camp Dodge, Iowa, for duty in the division of ophthalmology, section of surgery, Capt. L. L. Henninger, Council Bluffs.

To Camp Grant, Ill., for duty *in the division of ophthalmology*, section of surgery, Lieut. E. J. Lambert, Ottumwa.

To Fort Oglethorpe, Ga., Lieut. J. A. White, Olin.

To Fort Riley, for duty, Capts. A. Negus, Keswick, and W. S. Norton, Muscatine.

To Washington, for duty, Capt. G. McConnell, Waterloo.

KANSAS

To Ambulance Co. No. 9, from post hospital, Schofield Barracks, Lieut. L. A. Clary, Hutchinson.

To Camp Cody, Deming, N. M., *for duty and report in person to* commanding general for purpose of making examinations in his specialty of recruits for the National Army, *Major John E. Hewitt*, Wakefield.

To Fort Houston, Texas, for duty, Lieut. P. B. Matz, Leavenworth.

To Fort Leavenworth, for duty, Capt. J. F. McGill, Fort Scott.

To Fort Oglethorpe, for a course of instruction, Lieuts. Richard C. Henderson, Pittsburg, and William J. Stewart, Summerfield.

KENTUCKY

To American University, Wash., for duty, Lieut. F. K. Foley, Central City.

To Camp Beauregard, La., for duty in division of ophthalmology, section of surgery of the head, Capt. R. Lockhart, Owensboro.

To Camp Shelby, Miss., for duty in division of ophthalmology, section of surgery of the head, Capt. O. Le R. Smith, Lexington.

To Fort Benjamin Harrison, for a course of instruction, Lieuts. Augustus B. Riley, Hartford, and Frank B. Dewitt, Rockport.

LOUISIANA

To Camp Beauregard, Alexandria, La., from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Lieut. Francis S. Furman, Shreveport.

To Fort Oglethorpe, for a course of instruction, Lieuts. William T. McNeese, Angie; Spears O. Turner, De Ridder; Harper L. Crow, Elmgrove; George B. LeSuer, Gonzales; Edwin O. Simonton, Jonesboro; Wiley R. Buffington and Irenaeus N. Tucker, New Orleans; Christopher L. Mengis, Norwood, and Clifford P. Rutledge, Shreveport.

To Syracuse, N. Y., for regimental duty, Lieut. H. N. Stilphen, New Orleans.

MAINE

To Camp Mills, Garden City, N. Y., for duty in division of ophthalmology, *section of* surgery of the head, Capt. W. E. Kershner, Bath; Forty-Second Division for duty, Lieut. H. S. Babcock, Castine.

MARYLAND

To American University, Washington, Second Regiment of *Engineers*, Lieut. F. H. Herman, Baltimore.

To Camp Devens, Ayer, Mass., Lieut. G. B. Wislocki, Baltimore.

To Camp Meade, Annapolis Junction, Md., for duty, Lieuts. J. H. Truitt, Bowie; F. O. Miller, Elliott City, and W. H. Kable, Woodsboro.

To Camp MacArthur, Waco, Texas, from New York Neurological Institute, New York, and report in person to commanding general and to commanding officer base hospital, for the purpose of *making examination* in his specialty, Lieut. George H. Preston, *Baltimore*.

To Camp Sheridan, Montgomery, Ala., from *Boston* Psychopathic Hospital, Boston, and report in person to the commanding general, and to the commanding officer base hospital, for the *purpose* of making examination in his specialty, Lieut. Milford Levy, Baltimore.

To Fort Benjamin Harrison, for a course of *instruction*, Capt. Compton Wilson, Friendship.

To Fort Oglethorpe, for a course of instruction, *Capt.* Henry R. Carter, Jr., Lieuts. James S. Akehurst, *Robert G. Fuller*, William R.

Geraghty, George H. Reinhardt, Harry C. Schmeisser, David Silberman, Daniel C. W. Smith, Horace B. Titlow, Baltimore; Alexander McC. Stevens, Easton; Oscar H. McNemar, Edenton; Richard E. Yellott, Fallston; Charles L. Magruder, New Market; Samuel J. Price, Queenstown, and Joseph W. Long, Walkersville.

MASSACHUSETTS

To Atlantic City, N. J., from Washington, D. C., for the purpose of attending a conference on the question of reconstruction hospitals, and on completion of this duty to return to his proper station, Major Elliott G. Brackett, Boston.

To Ayer, Mass., for duty as chief of division of otolaryngology, section of surgery of the head, Capt. W. F. Knowles, Boston.

To Camp Devens, Ayer, Mass., for duty, Major W. B. Lancaster, Brookline; Lieuts. V. S. Merritt, Springfield; A. A. K. Yoosuf, Worcester; from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Lieut. Daniel F. Mahoney, Boston.

To Camp Dix, Wrightstown, N. J., from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Capt. Frederick R. Ilsley, Medford.

To Camp McClellan, Ala., for duty as chief of the medical service, Capt. W. H. Robey, Jr., Boston.

To Camp Jackson, Columbia, S. C., from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Lieut. John M. Birnie, Springfield.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. W. J. Lally, Pittsfield.

To Fort Banks, Mass., for duty, Lieut. E. B. Hodskins, Bernardston.

To Fort Ethan Allen, Vt., for duty, Capt. H. M. Field, Norwood.

To Fort Porter, N. Y., with Base Hospital No. 23, Lieut. J. A. P. Millet, Boston.

To Fort Sill, Okla., for duty, Lieut. J. H. Anderson, Brockton.

To Neurological School, University of Pennsylvania, for a four weeks' course of intensive training in brain surgery, Major William F. Wesselhoeft, Boston.

To Base Hospital No. 44, Massachusetts Homeopathic Hospital, Boston, as recruiting officer, Capt. R. C. Wiggin, Boston.

Par. 3352, Sept. 5, 1917, War D., relating to Lieut. Harry F. Byrenes of Springfield, is revoked.

MICHIGAN

To Camp Custer, Battle Creek, Mich., for duty, Lieuts. C. M. Freedman, Ada; R. A. Davis, Clinton; F. M. Gowdy, St. Joseph, and A. W. Scidmore, Three Rivers.

To Camp Gordon, Atlanta, Ga., for duty as chief of division of otolaryngology, section of surgery of the head, Lieut. G. A. Bulson, Detroit.

To Camp Lee, Petersburg, Va., from Gas School, Fort Sill., Okla., and report to the commanding general for duty as instructor in gas defense, Capt. Hugh McD. Beebe, Ann Arbor.

To Camp Meade, Md., for duty, as chief of the medical service, Major N. B. Foster, Ann Arbor.

To Camp Mills, Garden City, Long Island, N. Y., for duty, Lieut. C. F. Kuhn.

To Camp Sherman, Ohio, Eighty-Third Division, for duty, Capt. O. H. Clark, Kalamazoo.

To Fort Benjamin Harrison, for duty with Base Hospital No. 36, Major H. G. Berry, Mount Clemens; Capt. J. Sill, Onaway; Lieuts. R. E. Scrafford, Bay City; G. P. Raynale, Birmingham; R. A. Sharkwiler, Detroit; A. J. Warren, Mount Clemens, and G. P. Sackrider, Owosso.

To Fort Des Moines, Iowa, for duty, Capt. W. P. Morrill, Benton Harbor.

To Youngstown, Ohio, Base Hospital No. 31, for duty, Lieut. O. D. Hudnutt, Otsego.

Par. 2347, Aug. 17, 1917, War D., which recommends the revocation of so much of Par. 48, Special Orders, No. 165, War D., July 16, 1917, as relates to Lieut. Floyd W. Lockwood, South Lyon, is revoked.

MINNESOTA

To Camp Kearny, Linda Vista, Calif., for duty in division of ophthalmology, section of surgery of the head, Capt. E. A. Meyerding, St. Paul.

To Camp Wheeler, Macon, Ga., from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Capt. Chelson C. Pratt, Mankato.

To Fort Benjamin Harrison, for a course of instruction, Capt. Robert H. Managan, International Falls; Lieuts. Garnett Belote, Caledonia, and Carl N. Harris, St. Paul.

To Fort Riley, from Gas School, Fort Sill, Okla., and report in person to the commandant, Medical Officers' Training Camp, for duty as instructor in gas defense, Lieut. Bret V. Bates, Wheaton.

To Fort Worth, Texas, Aviation School, for duty, Capt. J. C. Staley, St. Paul.

To Minneapolis, Red Cross Ambulance Co. No. 37, for duty, Lieuts. R. L. Dorge, Dassel, and First Minnesota Field Artillery, J. E. Soper, Norwood.

To be detailed as a member of the board appointed by Par. 23, Special Orders No. 154, War Department, *July 3, 1915,* to determine the result of the preliminary examinations of applicants, and the final examinations of candidates for admission to the Medical Corps, from Army Medical School, Washington, D. C., Lieut. Raymond W. Whittier, Morton.

MISSISSIPPI

To Camp Mills, Garden City, N. Y., Forty-Second Division, for duty, Lieut. W. R. Harris, Swan Lake.

To Camp Pike, Ark., for duty in the division of ophthalmology, section of surgery, Capt. E. P. Odeneal, Biloxi.

To Columbus, N. M., Twelfth Cavalry for duty, Capt. W. E. Richards, Columbus.

To Fort Oglethorpe for a course of instruction, Capt. John A. Harris, Webb; Lieuts. Charles E. Lehmberg, Artesia; Hewitt Johnston, Biloxi; Norman A. McLeod, Brookhaven; Charles G. Bell, Canton; Bernard H. Booth, Drew; Timothy D. Welch, Ellisville; David G. Lemkowitz, Fort Adams; Arthur G. Trotter, Greenwood; George J. Mancill, Indianola; John W. Brandon, Jr., Money; Iris J. Slay, Rhodes; Archibald W. McNeal, Ruleville; Carlos R. McKee, Sanhill; John K. Kellis, Shuqualak; Reginald F. Annis, Stillmore, and John G. Backstrom, Tutwiler.

MISSISSIPPI

To Fort Ruger, H. T., from Fort Shafter, for duty as post surgeon, Capt. J. C. Ballard, Biloxi.

To Fort Sill, Okla., for duty as chief of surgical service, Major J. W. Barksdale, Winona.

MISSOURI

To Camp Doniphan, Okla., for duty in division of ophthalmology, section of surgery of the head, Lieut. W. L. Small, Kansas City.

To Camp Logan, Houston, Texas, to make examinations in his specialty of recruits for the National Army, Lieut. George A. Griot, St. Louis.

To Camp Funston, Kan., for duty in the division of ophthalmology, section of surgery, Lieut. J. C. Hynes, St. Louis.

To Camp MacArthur, Texas, for duty as chief of the medical service, Capt. *C. H.* Campbell, *St. Louis.*

To Camp Pike, Little Rock, Ark., from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Capt. August A. Gossow, St. Charles.

To Camp Wadsworth, S. C., as chief of medical service, Capt. L. Sale, St. Louis.

To Camp Sherman, Chillicothe, Ohio, to take charge of the division of ophthalmology, section of surgery, Major C. A. Wood, St. Louis.

To Honolulu, H. T., Department Hospital, for duty, Capts. R. K. Ogilvie, Blodgett, and R. S. Bryan, St. Louis.

To report in person to Capt. A. E. Schlanser, Base Hospital, No. 31, Youngstown, Ohio, for duty, Capt. .K. P. Jones, Kansas City.

MONTANA

To Fort Benjamin Harrison, for a course of instruction, Lieut. Grover C. Sherrard, Opheim.

NEBRASKA

To Camp Travis, Texas, for duty in the division of ophthalmology, section of surgery, Lieut. C. L. Hooper, Lewellen.

To Fort Oglethorpe, for a course of instruction, Lieut. David A. Walker, Comstock.

NEW HAMPSHIRE

To Camp Mills, Garden City, N. Y., for duty, Capt. P. Bartlett, Hanover.

To Camp Taylor, Louisville, Ky., Base Hospital, as roentgenologist, Lieut. F. A. Sprague, Concord.

To Fort Benjamin Harrison, from Gas School, Fort Sill, Okla., and report in person to the commandant Medical Officers' Training Camp, for duty as instructor in gas defense, Lieut. John A. Drew, Rumney.

NEW JERSEY

To American University, Wash., for duty, Lieut. A. G. Sacco, West Hoboken.

To Camp Bowie, Fort Worth, Texas, from Gas School, Fort Sill, Okla., and report in person to the commanding general for duty as instructor in gas defense, Lieut. Friend B. Gilpin, Cranford.

To Camp Hancock, Ga., for duty in division of ophthalmology, section *of surgery of the head,* Lieut. *J. J. L. Young, Newark.*

To Camp McClellan, Ala., for duty in division of ophthalmology, section of surgery of the head, Capt. W. W. Osgood, Jordan.

To Camp Mills, Garden City, N. Y., for duty, Capt. J. S. Brown, Mont Clair; Lieuts. C. F. Becker, Camden; with Forty-Second Division, J. W. Coghlan, Newark.

To Camp Shelby, Miss., for duty as chief of medical service, Capt. G. H. Lathrope, Morristown.

To Fort Benjamin Harrison, for a course of instruction, Lieut. Runkle F. Hegeman, Somerville.

To Fort Oglethorpe, for a course of instruction, Capt. Absalom S. Wescoat, Atlantic City; Thomas S. McCabe, Newark; Lieuts. George W. Potts, Asbury Park; Irving E. Charlesworth, Bridgeton; Abram C. Reeves, East Orange; Leo E. Froomess, Julius Gerendasy, Michael Vinciguerra, Elizabeth; Edward P. Essertier, Hackensack; Jacob Blumberg, Adolph Von P. Fardelmann, Jersey City; Arthur M. Greenwood, Longport; Frank H. Pinckney, Morristown; Philip Conlon, William Satterer, Newark; Arthur G. Hilliard, New Brunswick; Samuel A. Vandewater, Oradell; Edwin N. Riggins, Orange; Arthur H. Temple, Passaic; Orville R. Hagen, *Charles J. Murn, Paterson;* Marshall F. Lummis, Pitman; Clarence LeF. Vreeland, Pompton Lakes; William D. Sayre, Red Bank; Henry J. Harp, Sussex; George E. Harhen, Verona; Charles M. Gray, Vineland; from Gas School, Fort Sill, Okla., and report in person to the commandant, Medical Officers' Training Camp, for duty as instructor in gas defense, Lieut. *Philip* Du Bois Bunting, Elizabeth.

To Hoboken, N. J., for duty, Lieut. J. Toporoffsky, Paterson.

To report in person to commanding general, Western Department, for duty, Lieut. H. D. Williams, Trenton.

To Syracuse, N. Y., for regimental duty, Lieut. W. L. Corwell, Bridgeton.

NEW MEXICO

To Camp Cody, N. M., for duty in division of ophthalmology, section of surgery of the head, Lieut. J. W. Tinder, Roswell.

NEW YORK

To Camp Bartlett, Westfield, Mass., for duty, Capt. J. W. Colbert, New York City; Lieuts. F. J. A. Bennett, Auburn; L. W. Livermore, Gowanda; H. E. McGarvey, New York, and W. H. McShane, Troy.

To Camp Devens, Ayer, Mass., for duty in the division of ophthalmology, section of surgery, Capt. O. H. Johnson, New York.

To Camp Devens, Ayer, Mass., for duty in the division of ophthalmology, section of surgery, Capt. O. H. Johnson, New York.

To Camp Dix, N. J., for duty as chief of medical service, Capt. D. Bovaird, New York.

To Camp Doniphan, Okla., for duty as chief of the medical service, Major S. Strauss, New York.

To Camp Funston, Kan., for duty as chief of medical service, Capt. A. MacFarlane, Albany.

To Camp Gordon, Atlanta, Ga., for duty, Lieuts. W. E. Barron, dison; W. N. Barnhardt, Central Islip, and A. F. A. Barry, Stony oint.

To Camp Jackson, Columbia, S. C., for duty, as chief of the medical service, Major W. W. Herrick, New York.

To Camp Lee, Va., for duty in the division of ophthalmology, section of surgery, Capt. L. E. Hetrick, New York.

To Camp Meade, Md., for duty in the division of ophthalmology, section of surgery, Capt. R. L. Crockett, Oneida.

To Camp Mills, Garden City, Long Island, N. Y., for duty, Capt. G. P. Coopernail, Redford; Lieuts. W. H. Ordway, A. A. Levine, New York; G. K. Smith, Syracuse; for duty with Forty-Second Division, M. R. Bradner, Warwick; from Gas School, Fort Sill, Okla., and report *in person to the* commanding general for duty as instructor in gas defense, Charles N. B. Camac, New York.

To Camp Sherman, Chillicothe, Ohio, and report in person to the commanding general and to the commanding officer of the base hospital, for duty as chief of the medical service, Major Dudley DeV. Roberts, Brooklyn; to assume command of Field Hospital Detachment No. 4, H. S. Satterlee, New York.

To Camp Upton, N. Y., Seventy-Seventh Division, for duty, Major R. Derby, New York.

To Camp Wadsworth, S. C., for duty as chief of division of otolaryngology, section of surgery of the head, Lieut. F. V. Hoehn, Waterloo.

To Fort Benjamin Harrison, for a course of instruction, Capt. Charles H. Erway, Elmira; Lieuts. Arbor D. Munger, Brooklyn; Adolph J. Newman, New York; for duty with Base Hospital No. 36, E. Smith, Jr., Port Henry.

To Fort McDowell, Calif., for duty, Capt. K. E. Williams, Rome.

To Fort Oglethorpe, for a course of instruction, Lieuts. Oliver L. Stringfield, Brooklyn; Wellington A. Lebkicher, Fordham; Frank P. Eves, Constantine P. Faller, Gilbert J. Levy, and John K. Norwood, New York.

To Fort Porter, N. Y., with Base Hospital No. 23, Lieuts. A. A. Gartner and W. L. Machemer, Buffalo.

To Fort Slocum, N. Y., for duty, Capts. J. C. E. Daunais, Cohoes, and W. Stanton, Webster.

To Fort Worth, Texas, for duty, Capt. R. B. Anderson, Brooklyn, and Lieut. A. M. Caccini, New York.

To Hoboken, N. J., for duty, Lieuts. J. Bernstein, O. H. Heffter, Brooklyn; S. Strauss, New York; C. A. Lawler, Salamanca, and J. M. Gillette, Sloatsburg.

To Takoma Park, D. C., for duty and report in person to the commanding officer, Walter Reed General Hospital, for instruction in tuberculosis examinations, Capt. Joseph Muir, New York.

To Wichita Falls, Texas, Aviation School, for duty, Lieut. C. Atkinson, Brooklyn.

To U. S. Army General Hospital No. 1, New York, for duty with Base Hospital No. 3, Capt. L. Hauswirth, New York.

Par. 4194, Sept. 17, 1917, War Department, relating to Capt. Joseph MacDonald, New York, is revoked.

Par. 3604, Sept. 10, 1917, War Department, relating to Lieut. Arthur Krida, Schenectady, is revoked.

NORTH CAROLINA

To Boston, Twenty-Sixth Division, N. G., for duty, Lieuts. T. A. Mann, Durham, and J. H. Cutchin, Whitakers.

To Camp Bowie, Texas, for duty in division of ophthalmology, section of surgery of the head, Lieut. L. N. West, Raleigh.

To Camp Gordon, Atlanta, Ga., for duty, Lieut. I. M. Taylor, Morganton.

To Camp Greene, N. C., for duty in division of ophthalmology, section of surgery of the head, Lieut. M. Saliba, Wilson.

To Camp Jackson, S. C., for duty in the division of ophthalmology, section of surgery, Capt. J. P. Matheson, Charlotte.

To Fort Oglethorpe, for a course of instruction, Lieuts. William H. Soruggs, Jr., Asheville; Hamilton W. McKay, Charlotte; Eugene R. Hardin, Clinton; Robinette B. Hayes, Fayetteville; Paul A. Petree, Germanton; Henry F. Starr, Julius G. Thomas, Greensboro; Numa H. Crews, Leland C. McIntosh, Henderson; Vance P. Peery, Kinston; Nicholas B. Cannady, Lourinburg; William N. Thomas, Oxford; Robert P. Beckwith, Rosemary; Sanford W. Thompson, Jr., Sanatorium; Thel Hooks, Smithfield; Julius A. Dosher, Southport; Richard B. Whitaker, Vineland, and Hugh T. Moore, Wilmington.

To Neurological School, University of Pennsylvania, for a four weeks' course of intensive training in brain surgery, Lieut. Charles A. Woodard, Durham.

OHIO

To American University, Wash., Second Regiment of Engineers, Capt. E. B. Jones, Columbus.

To Camp Sherman, Chillicothe, Ohio., Lieuts. W. L. Freyhof, Cincinnati; from Gas School, Fort Sill, Okla., and report in person to the commanding general *for duty as instructor* in gas defense, Albert J. Brainard, Cleveland.

To Camp Taylor, Ky., for duty in the division of ophthalmology, section of surgery, *Lieut. M. F. McCarthy*, Cincinnati.

To Columbus Barracks, for duty, Lieut. L. M. Tinker, Frankfort.

To Fort Benjamin Harrison, for a course of instruction, Lieut. Edward Kuck, Cincinnati.

To Fort Oglethorpe, for a course of instruction, Lieuts. Israel W. Mayerberg, Scottown, and Howard E. Harman, Seetonia.

To report in person to Capt. A. E. Schlanser, Base Hospital No. 31, Youngstown, Ohio, *for duty, Majors J. A.* Sherbony, B. W. Wilson; Capts. F. J. Bierkamp, R. R. Morrall, J. L. Washburn, C. C. Wolferth, Youngstown; Lieuts. W. K. Allsop, Steubenville; R. W. Fenton, Struthers; C. D. *Barrett, J. U. Buchanan,* W. H. Bunn, C. H. Moses, D. A. Nesbit, C. McF. Reed, Jr., and E. R. Thomas, Youngstown.

To Youngstown, Ohio, Base Hospital No. 31, for duty, Capts. A. E. Brant and S. M. McCurdy, Youngstown.

To Washington, for duty, Capt. *E. F. McCampbell, Columbus.*

Leave of absence for one month, Lieut. F. W. McRae, Jr., *Cleveland.*

Par. 2619, Aug. *22, 1917,* War Department, it is recommended that so much thereof as relates to Lieut. Harry N. McClellan, Dayton, is revoked.

OKLAHOMA

To Fort Clark, Texas, to Field Hospital Co. No. *7, Lieut. C.* R. Ozias, Linn.

To Fort Oglethorpe, for a course of instruction, Lieuts. Fred L. Patterson, Fargo, and John M. Lee, Oklahoma.

To report by telegraph to commanding general, Southern Department, for duty, Lieut. J. H. Mallory, Apache.

OREGON

To American Lake, Wash., *Ninety-First Division, Camp Lewis, for* duty, Lieut. I. H. Cramer, Portland.

To Camp Beauregard, La., for duty in division of ophthalmology, section of surgery of the head, Lieut. J. R. Wetherbee, Portland.

To Camp Travis, Fort Sam Houston, Texas, from Gas School, Fort Sill, *Okla.*, and report in person to the commanding *general for duty* as instructor in gas defense, Lieut. Daniel Grant, Portland.

To Fort Oglethorpe, for a course of instruction, Lieut. *Daniel* W. Ward, Forest Grove.

To report by telegraph to commanding general, Western Department, for duty, Lieut. H. W. Steelhammer, Silberton.

PENNSYLVANIA

To American University, Wash., Second Regiment of Engineers, Lieut. V. B. Eiler, Titusville.

To Camp Bartlett, Westfield, Mass., for duty, Capts. W. T. McConville, Honesdale, and D. H. Body, Pittsburgh; Lieut. W. R. *Campbell, East Smithfield.*

To Camp Bowie, Texas, for duty, Lieut. J. T. Bunting, Philadelphia.

To Camp Cody, Deming, N. M., from Gas School, Fort, Sill, Okla., and report in person to the commanding general thereof for duty as instructor in gas defense, Lieut. Asa L. Hickok, Meshoppen.

To Camp Custer, Mich., for duty in the division of ophthalmology, section of surgery, Lieut. M. H. Powers, Point Marion.

To Camp Gordon, Ga., for duty as chief of medical service, Lieut. J. C. Gittings, Philadelphia; for duty in the division of ophthalmology, section of surgery, Lieut. C. L. Kaucher, Reading; from Gas School, Fort Sill, Okla., and report in person to the commanding general thereof for duty as instructor in gas defense, Capt. Ferdinand L. Benz, Philadelphia.

To Camp Greene, N. C., for duty, Lieut. *J.* M. *Wainwright, Scranton.*

To Camp Hancock, Augusta, Ga., to duty and report in person to the commanding general for purpose of making examinations in his specialty of recruits for the National Army, Capt. John F. Culp, Harrisburg; from Army Medical School, Washington, D. C., and report in person to the commanding general for duty with the First Regiment Engineers, Pa., National Guard, Lieut. Joseph T. Murphy, Pottsville.

To Camp Lee, Va., for duty, Major L. Litchfield, Pittsburgh.

To Camp McArthur, Waco, Texas, from Gas School, Fort Sill, Okla., and report in person to the commanding general thereof for duty as instructor *in* gas *defense*, Lieut. Clifford B. Farr, Philadelphia.

To Camp McClellan, Anniston, Ala., for duty in division of ophthalmology, section of surgery of the head, Lieut. C. M. Stiles, *Philadelphia*; to duty and report in person *to* commanding general for purpose of making *examinations in* his specialty of recruits for the National Army, Lieut. Aaron L. Bishop, Philadelphia.

To Camp Mills, Garden City, Long Island, N. Y., for duty, Capt. W. J. Monaghan, Girardville; Forty-Second Division, for duty, Lieuts. G. H. Tibbins, Beech Creek, and J. S. Sharpe, Haverford; for duty in division of ophthalmology, section of surgery *of the head,* Lieut. I. S. Tassman, Philadelphia.

To Camp Sevier, Greenville, S. C., for duty in division of ophthalmology, section of surgery of the head, Lieut. C. E. G. Shannon, Philadelphia; from Gas School, Fort Sill, Okla., and report in person to the commanding general thereof for duty as instructor in gas defense, Lieut. Joseph Leidy, Philadelphia.

To Camp Sheridan, Montgomery, Ala., for duty as chief of medical service, L. H. *Prince,* Philadelphia; in division of ophthalmology, section of surgery of the head, Lieut. N. G. Shafritz, *Mont Alto.*

To Camp Travis, Fort Sam Houston, Texas, for duty, Lieut. W. H. Guy, Pittsburgh.

To Fort Benjamin Harrison, for a course of instruction, Lieut. Edward E. Hamer, Pittsburgh.

To Fort Oglethorpe, for a course of instruction, Capts. David M. Bell, Canonsburg; David O. Thomas, New Kensington; John J. McKenna and Thomas W. Penrose, Philadelphia; Lieuts. Le Roy Umburn, Albion; George T. McNish, Alverton; William C. Hensyl, Berwick; Charles B. Dotterer, Boyertown; Thomas S. Hicks, Braddock; James W. Silliman, Bradenville; Herbert E. Simrell, Clark's Summit; Charles J. Shillott, Columbia; Russell G. Witman, Conshohocken; John H. Stearns, Delaware Water Gap; Audley W. Ricketts, Dempseytown; John J. Sweeney, Doylestown; Roy Truckenmiller, Drifton; Harold A. Chering, Edinboro; Ignatius A. Bednarkiewicz, John H. Lloyd, Richard O. Miller, Jesse C. Stilley and Paul T. Young, Erie; Lawrence N. Breene, Farrell; Wilder J. Walker, Greensburg; Adam M. Robinhold, Hamburg; Clyde L. Williams, Harmonsburg; John R. Dyson, Hazleton; Sem G. Beck, Hecktown; Frank B. Stevenson, Indiana; John W. Merryman, Kennett Square; William E. Hyskell, Madera; Edgar K. Wells, Masontown; Edward Y. Ord, McKeesport; Joseph C. McFate and William B. Skelton, Meadville; John J. Hislop, Miners Mills; Porter M. Wall, Monongahela; Henry A. Carskadden and William W. Woods, Mont Alto; Wilbur E. Turner, Montgomery; Stephen S. P. Wetmore, Morrisville; Frank P. Summa, Nanticoke; Samuel H. Pettler, New Brighton; Frank F. Urey, New Castle; Henry Bley, New Ringgold, Theodore Peters. Norristown; Andrew Anders, Othmar F. Barthmaier, William P. Belk, Arthur E. Bogart, Reuben A. Bogia, James N. Coombs, William F. Craig, Vincent J. Fenerty, Jacob J. Rutberg, Charles S. Shafer, Samuel Stalberg, Carl Stoepler and Arthur R. Woods, Philadelphia; Myron Rudolph and William J. Stewart, Pittsburgh; August G. Hinriche, Pittston; John G. Striegel, Pottsville; De La Ray Signor, Quarryville; Thomas M. Snyder, Reading; Connell Edward Murrin, Scranton; William A. Ostrander, Smethport; John Whann, Jr., Soldier; Harry S. Van Etten, Stroudsburg; Arthur J. Denman, Susquehanna; Abner H. Bauscher, Temple; Martin W. Freas, United; James L. Brennan, Washington; Israel P. P. Hollingsworth and George K. Strode, West Chester; Clark H. Yeager, Wilkes-Barre, and Howard A. Collins, Winburne; from Gas School, Fort Sill, Okla., and report in person to the commandant, Medical Officers' Training Camp, for duty as instructor in gas defense, Lieut. Gibson Smith, York.

To Fort Slocum, N. Y., for duty, Capt. L. A. Spaeth, Philadelphia.

To Fort Worth, Texas, for duty as chief of surgical service, Capt. J. S. Rodman, Philadelphia.

To Hawaii, for duty, Lieut. C. N. Haines, Sayre.

To Spartanburg, S. C., charge of division of otolaryngology, Lieut. W. P. Barndollar, Pittsburgh.

To Syracuse, N. Y., for regimental duty, Lieut. R. W. Cotton, McKees Rocks.

To Takoma Park, D. C., Walter Reed Hospital, for treatment, Lieut. F. D. Lohr, Derry.

To Wrightstown, N. J., Camp Dix, for duty, Lieut. I. W. Knight, Philadelphia.

To Home, from Fort Oglethorpe, on account of being physically disqualified for active service, Lieut. Thomas V. McLaughlin, Wilkes-Barre.

PHILIPPINE ISLANDS

To Fort Oglethorpe, for a course of instruction, Lieut. William J. Burke, Manila.

PORTO RICO

To Camp Hancock, Augusta, Ga., from Little Silver, N. J., and report in person to the commanding general for duty with the First Regiment Engineers, Pennsylvania National Guard, Capt. Emmett I. Vaughn, Central Aguirre.

RHODE ISLAND

To Camp Sevier, Greenville, S. C., from Fort Benjamin Harrison, and report in person to the commanding general thereof and to the commanding officer of the base hospital for duty to the chief of the surgical service, Lieut. George W. Gardner, Providence.

SOUTH CAROLINA

To Camp Wadsworth, Spartanburg, S. C., from Gas School, Fort Sill, Okla., and report in person to the commanding general thereof for duty as instructor in gas defense, Lieut. Lindsay Peters, Columbia.

To Fort Oglethorpe, from Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, and report in person to the commanding officer for duty as assistant to the sanitary inspector, and by letter to the commanding general, Southwestern Department, Major Francis L. Parker, Charleston.

SOUTH DAKOTA

To Boston, from Gas School, Fort Sill, Okla., and report in person to the commanding general, Twenty-Sixth Division, for duty as instructor in gas defense, Capt. Felix E. Ashcroft, Deadwood.

TENNESSEE

To Camp Hancock, Augusta, Ga., from Gas School, Fort Sill, Okla., and report in person to the commanding general thereof for duty as instructor in gas defense, Capt. Lee A. Stone, Memphis.

To Camp Meade, Annapolis Junction, Md., for duty in charge of the division of ophthalmology, section of surgery, Major E. C. Ellett, Memphis.

To Camp Wadsworth, S. C., for duty in division of ophthalmology, section of surgery of the head, Lieut. T. W. Rhodes, Whiteville.

To Fort Benjamin Harrison, for a course of instruction, Lieuts. Roy Granbery, Bolivar, and Charles N. Griffith, Tullahoma.

To Fort Oglethorpe, for a course of instruction, Major Cary A. Snoddy, Knoxville; Capt. Edward C. Mitchell, Memphis; Lieuts. Leon D'C. Cotten, Alexandria; Harry E. Hall, Apeson; William C. Sain, Bolivar; Leopold Shumacker, Chattanooga; Guy C. Anderson, Eads; Daniel B. Cliffs, Franklin; John G. Seay, Germantown; Granville I. Walker, Gillises Mills; William D. Cagle, Labelvillé; William H. Ballard, Laconia; Owen S. Deathridge, Fleetwood Gruver, John H. Lassiter, Eugene M. Orr, and Charles D. Walton, Nashville; James M. Oliver, Portland; Francis M. Boyatt, Oneida; Robert B. Griffin, Ridgely; James L. Smith, Selmer; John O. Boals, Somerville, and Frederick W. Lee, Springfield.

TEXAS

To Camp Bowie, Texas, for duty as chief of division of otolaryngology, section of surgery of the head, Capt. W. J. Mathews, Abilene.

To Camp MacArthur, Waco, Texas, for duty in division of ophthalmology, section of surgery of the head, Capt. N. H. Bowman, Beeville; for duty and report in person to commanding general for purpose of making examinations in his specialty of recruits for the National Army, Lieut. James J. Johnson, Sulphur Springs.

To Camp Travis, Texas, for duty in the division of ophthalmology, section of surgery, Capt. R. K. Cole, Dallas.

To Fort Benjamin Harrison, for duty with Base Hospital No. 36, Lieut. S. S. Fay, Galveston.

To Fort Clark, Texas, to Ambulance Company No. 7, Lieut. W. A. V. Cash, Abilene.

To Fort Oglethorpe, for a course of instruction, Lieuts. Thomas A. Booth, Cleveland; Jesse C. McKean, Lometa; Richard P. Price, Swenson; Daniel H. Brook, Travis.

To Fort Sam Houston, Texas, with Red Cross Ambulance Company No. 40, Lieut. H. A. Logsdon, Fort Worth.

To Fort Shafter, H. T., from Schofield Barracks, for duty as post surgeon, Major F. Hadra, San Antonio.

To report by telegraph to commanding general, Southern Department, Lieut. F. C. Parrott, Lott.

As commanding officer of Red Cross Ambulance Company No. 40, Lieut. W. S. Horn, Fort Worth.

VIRGINIA

To Camp Gordon, Ga., Eighty-Third Division, for duty, Capt. F. E. Jenkins, National Soldiers' Home.

To Camp Green, N. C., for duty in division of ophthalmology, section of surgery of the head, Capt. G. A. Renn, Norfolk.

To Camp Hancock, Ga., for duty in division of ophthalmology, section of surgery of the head, Capt. W. J. Olds, Front Royal.

To Camp Upton, Yaphank, L. I., from Gas School, Fort Sill, Okla., and report in person to the commanding general thereof for duty as instructor in gas defense, Lieut. Herbert D. Snyder, Norfolk.

To Camp Wheeler, Ga., for duty in division of ophthalmology, section of surgery of the head, Capt. F. E. Jenkins, National Soldiers Home.

To Fort Oglethorpe, for a course of instruction, Lieuts. William F. Passer, City Point, and Chauncey E. Dovell, Clear Brook.

To Memphis, Tenn., S. C. Aviation School, Lieut. H. C. Mallory, Greenbackerville.

To Petersburg, Va., in charge of ophthalmic division, section of surgery of the head, Capt. B. R. Kennon, Norfolk.

To report in person to the President, Physical Examining Unit, Aviation Section, Signal Officers Reserve Corps, to be established in Richmond, Va., for duty, and by letter to the officer in charge, Aviation Section, Signal Corps, U. S. Army, 119 D Street N.E., Washington, D. C., and Lieut. William W. Gill, Richmond, Va.

WASHINGTON

To Camp Lee, Petersburg, Va., for duty, Lieut. S. E. Lambert, Spokane.

To Camp Lewis, American Lake, Wash., for duty, Capt. E. C. Wheeler, Tacoma; Lieuts. C. C. Harbaugh, Sedro Woolley and F. W. Wichman, Tenino; for duty in the division of ophthalmology, section of surgery, Capt. W. E. Joiner, Seattle, and Lieut. F. G. Sprowl, Spokane; from Gas School, Fort Sill, Okla., and report in person to the commanding general thereof, for duty as instructor in gas defense, Capt. Nevin D. Pontius, Seattle.

WEST VIRGINIA

To Camp Cody, Deming, N. M., to duty and report in person to commanding general for purpose of making examinations in his specialty of recruits for the National Army, Capt. Lewis C. Covington, Charleston.

To Camp Lee, Va., for duty in the division of ophthalmology, section of surgery, Lieut. N. R. Price, Marlinton.

To Camp Sherman, Ohio, for duty in the division of ophthalmology, section of surgery, Capt. R. H. Powell, Fairmont.

To Camp Wadsworth, Spartanburg, S. C., for duty in the division of ophthalmology, section of surgery of the head, Lieut. C. F. Mahood, Alderson.

Paragraph 2352, Aug. 17, 1917, War D., which recommends the revocation of so much of Par. 119, Special Orders No. 189, War D., Aug. 15, 1917, as related to Lieut. William C. Williams, Caretta, be revoked.

WISCONSIN

To Camp Kearny, Calif., as chief of surgical service, Major J. R. McDill, Milwaukee.

To Camp MacArthur, Texas, for duty in division of ophthalmology, section of surgery of the head, Lieut. L. J. Bennett, Fort Atkinson.

To Camp Pike, Ark., for duty in the division of ophthalmology, section of surgery, Lieut. W. W. Pretts, Platteville.

To Fort Benjamin Harrison, for a course of instruction, Lieut. George E. Towel, Mosinee.

To Fort Snelling, Minn., for duty, Capt. R. M. Nichols, Sheboygan Falls.

To Hoboken, N. J., for duty, Capt. F. J. Peirce, Cheyenne.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CONNECTICUT

Personal.—Dr. George Blumer, dean of the Yale Medical chool, has been appointed a member of the board of educaion of New Haven.

ILLINOIS

Medical Schools Merged.—Word has been received that Loyola University has taken over the Chicago College of Medicine and Surgery and merged it with its own medical department.

Chicago

Billings and Post on Way Back.—As noted elsewhere in this issue, the Red Cross Commission to Russia is now on its return to this country. Drs. Frank Billings and Wilber E. Post of Chicago are members of this commission.

Women for War Service.—Nearly 100 women physicians, at a meeting held in the rooms of the State Council of Defense, September 22, volunteered to assist in the registration of Chicago women for war service. The registration week will begin November 5.

Poliomyelitis.—There have been 153 cases of infantile paralysis in the city for the first twenty-one days of September, with two deaths. All cases are hospitalized within twenty-four hours after being reported. To defray the cost of hospitalization of cases and to fight the disease generally, the health commissioner has asked an appropriation of $118,000.

Personal.—The following is the medical staff of the newly organized Eleventh Infantry: Major B. McPherson Linnell and Lieuts. Walter H. Meents, Claude H. Searle, Wilmette, and Louis B. Cardwell.——Dr. John Ridlon has been commissioned major, M. R. C., U. S. Army, and assigned to special work in orthopedic surgery.——Dr. J. Clarence Webster, who was operated on some months ago, and who has been convalescing in Canada, has returned to Chicago.

Infantile Paralysis.—The total number of cases of infantile paralysis the first eight months of 1917 was eighty-two, as compared with 155 for the same period of 1916. In 1916 the disease began to abate by the end of August. This year, however, the number of cases increased, and for the first fourteen days of September, eighty-seven new cases were reported, as compared with twenty-five for the same period in 1916. In the eighty-seven cases, twenty-three patients died, a percentage of 26.4, as compared with 16.1 for the total number of cases in 1916. A conference of physicians called by the health commissioner to discuss ways and means of preventing a spread of the epidemic reported that there is an active focus of the disease in the lower northwest side of Chicago, and that proper intensive measures should be adopted, with ample funds for stamping out the disease. It was said that no cases of infection due to contact with other cases have been observed. Two cases, however, occurred in the same family within three days. Careful investigation failed to show any relation of the disease to the milk supply. Early in 1916 the health commissioner asked the city authorities for $500,000 as a contingent fund to fight the disease. The sum was not granted on account of lack of funds. The health commissioner has now renewed his demand for sufficient funds to combat the disease.

INDIANA

Sanatorium Transformed to Hospital.—A forty-bed sanatorium, refurnished and equipped, was turned over recently to the Methodist state hospital board at Princeton. There was a clear deed and a maintenance fund of $7,000.

Hospital Opened.—The new hospital at Marion was opened for inspection, August 24. The transfer of patients began, August 27, and was completed in two days. The hospital has been built and furnished by public subscription at a cost of $70,000, and will accomodate seventy-five patients.

District Physicians Hold Meeting.—South Bend has been chosen as the place for the 1918 meeting of the Thirteenth District Medical Association. The following officers were elected at the recent meeting at Rochester: Dr. John C. Fleming, Warsaw, president; Dr. Samuel C. Loring, Plymouth, vice president; Dr. C. Norman Howard, Warsaw, secretary-treasurer, and Dr. Hugh M. Miller, South Bend, counselor.

Typhoid Fever.—September 21, ninety-eight cases of typhoid fever were reported in South Bend. Under the advice of Surg. Julius O. Cobb, U. S. P. H. S., the following measures have been recommended: chlorination of the water supply; boiling of all well water; the use of pasteurized or boiled milk, and antityphoid inoculation.

State Health Board to Exhibit.—The state board of health, in connection with the Indiana Anti-Tuberculosis Society and the Marion Society for the Prevention of Tuberculosis, is preparing a very extensive health exhibit at the state fair which is to be housed in three tents each 30 by 60 feet. Motion pictures will be shown, and the state board of health will be represented in the departments of public hygiene, pure food, weights and measures, water analysis, and laboratory.

Personal.—Dr. Augustus L. Marshall has been elected secretary of the Indianapolis Medical Society, succeeding Dr. Leslie H. Maxwell, who is on duty with Base Hospital No. 32.——Dr. Lewis P. Drayer has been appointed secretary of the health board of Fort Wayne, succeeding Dr. John H. Gilpin, who is on duty at Fort Benjamin Harrison.——Dr. Edmond D. Clark, Indianapolis, director of Base Hospital No. 32, gave a dinner to the members of the staff at the university club, August 29.——Dr. Sarah C. Jackson, Jeffersonville, one of the founders and trustees of the Odd Fellows' Home at Greenburg, has retired from practice, and has gone to the home to live. A dinner was given in her honor by the physicians and other friends at Jeffersonville.

MARYLAND

Personal.—Dr. Frank Martin and Dr. William H. Smith, who are on the staff of the University of Maryland Base Hospital Unit, have left for Philadelphia, where they expect to review the study of brain surgery, preparatory to going to France with the unit.——Dr. John S. Fulton, secretary of the Maryland State Board of Health, who is a captain in the Medical Reserve Corps, has been named on a board appointed by Major-Gen. William C. Gorgas to prepare a medical and surgical history of American participation in the European War.——Dr. Wright S. Sudler has been appointed one of the health officers of Baltimore County, vice Dr. William E. McClanahan, Highlandtown, who has received a commission as captain in the Medical Reserve Corps.

MASSACHUSETTS

Personal.—Col. Frank P. Williams, Boston, of the Massachusetts National Guard, has been assigned to the twenty-sixth division as divisional sanitary inspector.——Dr. Gualtiero De Amezaga, Roxbury, Boston, was seriously injured in an automobile accident at Winchester, August 29.

Correction of Speech Disorders.—Dr. Walter B. Swift, Boston, has been appointed medical supervisor of speech classes in the public schools of Fall River. He has instructed teachers who will install his methods and systems of treating speech disorders in the school and form classes for phonetics, stuttering and mental defects.

MICHIGAN

Hospital Under Quarantine.—The Homeopathic Hospital at Ann Arbor was placed under quarantine, September 7, on account of the occurrence of four cases of virulent diphtheria. Two diphtheria patients died.

Personal.—Dr. Clara M. Davis, Lansing, has returned after six months in the Orient.——Dr. Allison H. Edwards has taken charge of the Grand Rapids Tuberculosis Sanatorium pending the appointment of a superintendent to succeed Miss Emma Frieby, resigned.

NEW YORK

Personal.—Dr. Frank L. Christian, Elmira, has been appointed superintendent of the Elmira Reformatory and the Eastern New York Reformatory, Napanoch.

Gibson Acquitted.—Dr. William B. Gibson, health officer of Huntington and coroner of Suffolk County, was acquitted, September 7, of the charge of having performed an illegal operation on a woman of Huntington.

Appropriation for Farm Hospital Granted.—The request of Dr. Walter S. Goodale for an additional $100,000 for the equipment of the West Farm Hospital was granted by the Buffalo City Council, September 14.

Typhoid Fever.—September 7, there were reported in the epidemic of typhoid fever at West New Brighton, Staten Island, fifty cases of typhoid fever, and 1,000 citizens had been inoculated with antityphoid serum. The inoculations will be continued.

New York City

Budget for 1918.—Health Commissioner Haven Emerson estimates the expense of his department for 1918 as $4,101,046, or $727,457 more than the appropriation for 1917. Of this increase, $368,389 is for personal service, and $314,595 for new positions.

Public Health Service Changes.—Senior Surg. George W. Stoner, U. S. P. H. S., who for the past four years has had charge of the Marine Hospital at Stapleton, L. I., has been retired from active duty, having served forty years. Dr. Claude H. Lavinder is now in charge at Stapleton.

Medical Examiners Replace Coroners.—At a meeting of the Board of Estimate and Apportionment, September 13, the four coroners in Manhattan, two in Brooklyn, two in the Bronx, two in Queens, and two in Richmond borough will retire at the end of the year, and will be replaced by a chief medical officer in each borough. This will decrease the expenses of the office at least $40,000 a year.

New Broad Street Hospital Completed.—The new Broad Street Hospital has been opened for the reception of patients without any formal ceremony, the dedication having been deferred until some time next month. A dispensary is conducted in connection with the hospital, and two motor ambulances have been placed at the disposal of the public. This hospital was erected at a cost of $270,000, and is one of the best equipped hospitals of its size in the city. This will meet the needs of that portion of the city lying below Canal Street and between the North and East rivers.

Indictments in Diploma Case.—The Grand Jury has filed additional indictments against "Dr." Nicholas Clements and his wife, Rose Clements, and Joseph Budd, all of whom were recently arraigned, and who are alleged to have conducted a diploma factory where it was possible to purchase regent's certificates, college diplomas, and even licenses to practice medicine. Further investigations have resulted in the discovery of several additional persons who are alleged to have been practicing medicine under diplomas or licenses obtained from this source. One of these diplomas purported to be from a medical institution of high standing in Vienna, Austria.

Medical Colleges Open to Women.—Announcement has been made that the College of Physicians and Surgeons of Columbia University will be open to women during the coming month. This step has been hastened by conditions arising from the war, and has been made possible by a gift of $50,000 from George W. Breckenridge, San Antonio, Texas.——Women are also for the first time to be admitted to the medical department of New York University.——Preliminary work in biology, chemistry and physics will be offered at the New York Homeopathic Medical College and Flower Hospital.

NORTH CAROLINA

Public Health Laboratory.—Wilmington and New Hanover county have a well equipped laboratory for the free diagnosis of infectious disease, with a competent bacteriologist and chemist in charge. The bulletin of the health authorities of these municipalities complains that the facilities of the laboratory are not used as freely as they should be by the physicians of the district. It is said that cases of typhoid fever are still being diagnosed by the symptoms rather than by the laboratory findings, and fever cases that subside in a few days after the administration of quinin are called malaria, while those in which the treatment fails may be found to be typhoid fever. It is said that many cases of paratyphoid fever proceed to recovery without differential diagnosis. Criticism of the board and the laboratory, which, it is claimed, is not justified, is sometimes heard. A plea is made for a better acquaintance with the laboratory and its purposes.

OHIO

Epidemic of Typhoid Fever.—September 7, it was reported from Harrod that twenty-five persons had become ill with typhoid fever, which was supposed to have been caused by ice cream cones eaten at a family reunion. Many of the cases are said to be serious.

Dentists and Anesthetics.—In a rule made by Attorney-General McGhee, September 6, dentists may legally administer anesthetics both in the practice of dentistry and in other cases. The state medical board has contended heretofore that only physicians could legally administer anesthetics.

Personal.—Dr. Allen W. Freeman, Richmond, Va., epidemiologist in the United States Public Health Service, and formerly assistant state health commissioner of Virginia, has been elected state health commissioner of Ohio, to succeed the late Dr. George H. Matson, at a salary of $6,000 a year. He will enter on his duties, October 1, with headquarters at Columbus.

Taking Care of the Poor.—At Marion, September 7, twenty-five members of the local medical society associated themselves together as a staff to take care of such indigent patients as require hospital care who may be reported to them by the Social Service League. A division of the work will be made into the various specialties. The arrangement, it is understood, is to be continued during the war.

OKLAHOMA

Personal.—Dr. Samuel M. Hunter, Oklahoma City, has succeeded his son, Dr. George Hunter, as city physician.——It is reported that the state board of medical examiners has revoked the license granted Dr. Thomas E. Shepherd, Tulsa, who is charged with having performed a criminal operation in May last which resulted in the death of the patient. The complaint to the state board was signed by Dr. S. De Zell Hawley for the county medical society.

OREGON

Personal.—Dr. Frank M. Brooks, Portland, has been appointed a member of the state board of health, to succeed Dr. Marius D. Marcellus, who was called to the colors.——In the places of Dr. Henry E. Clay, Salem, and Dr. David N. Roberg, secretary of the board, who have also joined the Army, Drs. William H. Dale, Harrisburg, and Robert E. L. Holt, La Grande, have been serving.

PENNSYLVANIA

Typhoid Fever.—Typhoid fever is reported to be epidemic at East Petersburg, where there are at present fourteen cases.

Personal.—Dr. Charles B. Dreher, Tamaqua, was given a banquet, September 14, to commemorate the completion of half a century in the practice of medicine.——Dr. W. Roland Davies, West Scranton, has been elected president of the Craftmen's Club.——Dr. Lowell M. Gates has been elected president of the American Bank of Commerce, Scranton.

Philadelphia

Addresses County Medical Society.—Dr. Alfred Gordon, Philadelphia, delivered an illustrated lecture before the York County Medical Society at its annual meeting, September 6, on the differential diagnosis and treatment of the more common neurologic conditions met with in general practice.

Personal.—Dr. Earle B. Stokes has been commissioned first lieutenant, N. G., Pa., and assigned to duty with the First Cavalry.——Lieut. Charles S. Pancoast, having been found physically disqualified for military service, has been mustered out of the service of the United States under date of August 3, and was honorably discharged from the Pennsylvania National Guard, August 4.

Medical Institutions.—Jefferson Medical College held its ninety-third annual opening exercises, September 24. The introductory address on "How to Study" was delivered by Dr. Chevalier Jackson, professor of laryngology.——The Woman's Medical College opened its school year, September 19, with an address by Dr. Martha Tracy, dean of the college. There has been an increase of 50 per cent. over last year in the entrance enrolment.

Medico-Chirurgical Notes.—The board of review appointed to assess damages for property taken by the city for the parkway has awarded $714,500 to the University of Pennsylvania for the old Medico-Chirurgical College and Hospital property taken by the university in the merger proceedings. With the exception of the hospital, which will be retained for use in case of war emergency, all the buildings of the group will be torn down.

SOUTH DAKOTA

Personal.—Dr. Oscar W. Phelps, Lemmon, has been bequeathed $50,000 by the will of a former patient in Hope, Ill.

TEXAS

New Health Board.—A new board of health has been appointed from San Antonio, consisting of Charles S. Venable, John H. Burleson, Dabney Berrey and Thomas T. Jackson. The board reappointed Dr. William A. King as city health officer.

State Quarantine Station to Be Built.—It is announced that the work on the State Quarantine Station at Sabine Pass, construction of which was authorized some time ago, will be begun in the near future. An appropriation of $85,000 was made for this purpose.

Psychiatric Appointments.—Dr. John Preston, superintendent of the State Insane Hospital, Austin, has been appointed by the Medico-Psychological Society to organize neuropsychiatric hospital units to be attached to the base hospitals and other military sanitary units. Dr. Preston has appointed the following committee to carry out these plans: Drs. Marvin L. Graves, Galveston; John S. Turner, Dallas; George F. Powell, Terrell; Thomas B. Bass, Abilene; James R. Nichols, Austin, and John W. Bradfield, Austin.

VIRGINIA

Infantile Paralysis.—August 30, the city board of health of Harrisonburg appropriated $1,000 for fighting infantile paralysis, which had occurred in epidemic form in the city. Cases had occurred at Winchester and other places in Rockingham County. About September 16, the disease had been brought under control, and quarantine was lifted throughout the county. Since the disease was first reported in April there have been sixty-two cases, twelve of which resulted fatally.

CANADA

University News.—At a recent meeting of the board of governors of Manitoba University, a resolution was proposed that no unmarried man of 20 years or over be permitted to attend lectures or take examinations unless he furnishes satisfactory reasons why he has not enlisted. A proposal for the compulsory military training of male students was approved.

Infantile Paralysis in Ontario.—Forty-three cases of infantile paralysis, three of which have proved fatal, have been reported in the past few weeks in Ontario. The following figures show the sections of the province affected: Toronto, 7; Ottawa, 8; Edwardsburg, 7; Cardinal, 6; Cornwall, 9, and Ferguson, 2. These figures show the extreme eastern part of the province mostly affected.

Venereal Disease Committee.—The committee on the prevention of venereal diseases which has been active for some time in Toronto is to be made a permanent organization, and will be known as the Advisory Committee on Venereal Disease for Military District Number 2. Major John G. Fitzgerald has been elected president; W. S. Gundy, treasurer, and Capt. W. Gordon Bates, secretary.

Personal.—Dr. Percy W. M. Curry, Montreal, has left for Valcartier, Que., to join the C. A. M. C., and expects to go overseas shortly.——Dr. Albert E. MacCaulay, superintendent of the General Hospital, St. John, N. B., has resigned.——Dr. Alfred B. Atherton, formerly of Fredericton, N. B., has retired from practice, and has taken up residence at San Diego, Calif.——Capt. A. H. Hall, who was wounded in France, has resumed practice in Quebec City.——Dr. Robert G. Ferguson, Winnipeg, has been appointed medical superintendent of the Qu'Appelle Sanatorium, pending the return of Dr. Fred J. Hart, who is on active service.——Among the recently wounded are: Capts. J. Harold Jones, Vancouver, B. C.; Robert Mackenzie, Vancounver, B. C.; Richard W. Kenney, Winnipeg, and James E. Bloomer, Moose Jaw, Sask., all of the C. A. M. C.——Dr. William L. Denny, Western University, London, Ont., 1917, has obtained a commission in the Royal Navy as medical officer.——Dr. Duncan A. McKillop, St. Thomas, Ont., Western University, London, has been appointed surgeon with the Royal Navy.——Lieut. Donald Neil Stuart, V. C., D. S. O., R. N. R., Prince Edward Island, has been given the Victoria Cross for services in action with enemy submarines.——Capt. Alexander L. McQuarrie, medical officer of health, New Westminister, B. C., and who went overseas with the 121st Battalion as regimental medical officer, has been appointed officer commanding Canadian Sanitary Section No. 7 in England.——Major Angus W. McPherson, C. A. M. C., medical officer of health, Peterboro, Ont., has returned to Canada for two months' leave of absence.——Dr. Louis De L. Harwood, superintendent of the Notre Dame Hospital, Montreal, has left Canada to join the staff of Laval Military Hospital in France.——Capts. L. J. Siebert and Hereward D. Livingstone, Toronto, Lieut. John M. Mac Donald, Toronto, C. A. M. C., and Dr. Percival E. Faed, Grace Hospital, Toronto, have left for China.——Lieut.-Col. John R. Spier, Westmount, C. A. M. C., is in command of the Canadian Hospital, Bromley, England.——Capt. Harold A. Simpkins of the Spadina Convalescent Hospital, Toronto, has been transferred to England.——Capt. Frank S. Park, C. A. M. C., who was taken prisoner by the Germans in June, 1916, was attached to the Fourth Canadian Mounted Rifles. He asked permission to attend the allied prisoners at Minden Hospital, where there are 2,000 prisoners, and for some months has been acting as medical officer to that hospital.

GENERAL

Organization of Dental Surgeons.—The association of military Dental Surgeons of the United States has been organized, with offices in San Francisco. Dr. John D. Millikin is president of the association, which publishes a quarterly bulletin of dentomilitary news.

Correction.—Dr. F. A. Faught writes that in his discussion of Dr. Slemon's paper, The Journal, September 8, p. 780, lines 9, 10 and 11, should be corrected to read: "This corresponds with the 3:2:1 ratio; that is, the pulse presssure is ⅓ the systolic and ½ the diastolic."

Industrial Accidents Considered.—The International Association of Industrial Accident Boards and Commissions held its fourth annual meeting at the state house, Boston, August 21 to 24. Among the subjects discussed were, "Medical Competence and Hospital Efficiency," and "Compensation Insurance."

Correction.—Dr. Curtis F. Burnam writes that a typographical error appears in the report of his discussion on the papers on radium, The Journal, September 22, page 996. In the sentence: "In the cases which I am reporting I feel that the results could be duplicated by the use of 3 or 4 mg., although I have used myself as much as a gram or two with some of them," the numerals 3 or 4 should be 300 or 400.

Personal.—Rear Admiral Charles F. Stokes, U. S. Navy, retired, and until recently medical director of the board of inebriety and in charge of its country retreat at Warwick, N. Y., is reported to be seriously ill at Brian Cliff Manor, N. Y.——Dr. Ross H. Skillern, Philadelphia, has accepted a commission as major in the Medical Reserve Corps, and has been placed in charge of the nose and throat unit at Camp Sheridan, Montgomery, Ala.

Bequests and Donations.—The following bequests and donations have recently been announced:

Chicago Home for Crippled Children, $5,000, and Iroquois Memorial Hospital, $500, by the will of Mrs. Kate Adams Cooper, Chicago.

Misericordia Hospital, Philadelphia, a donation of $10,000 for the establishment of a ward to be known as the Elinor C. Donnelly room.

Lincoln Hospital and Home, New York, $81,000; New York Orthopedic Dispensary and Hospital, and New York Society for the Prevention of Cruelty to Children, each $40,615, and St. John Guild, $240,890, by the will of Mrs. Helen Juilliard, New York.

Yale Medical School, New Haven, a donation of $100,000 for the Harriman Fund for Obstetrics, by Mrs. Edward H. Harriman, and a donation of $50,000 by Charles N. Brooker, Ansonia.

Pennsylvania Hospital, the furnishings of the Tate Home; Pennsylvania Indigent Widows, and Single Women, Philadelphia, $10,000 in trust, by the will of Susan Tate.

University Museum, Philadelphia, donation of the archeological and ethnological collections of the late Dr. William White, by his widow.

Montefiore Home, New York, $1,000, and to Mount Sinai Hospital his residuary estate, by the will of Julian A. Hellman.

War Tuberculosis.—Preparations for the extensive campaign to prevent the spread of tuberculosis in the United States Army and in the conscripts rejected by the draft will be the theme for discussion at the meeting of the Southern Sectional Conference of the National Association for the Study and Prevention of Tuberculosis which is to be held in Chattanooga, Tenn., November 9 and 10. The officers of the conference are as follows: president, Dr. Lewis B. McBrayer, Sanatorium, N. C.; vice presidents, Dr. Louis A. Bize, Tampa, Fla.; Mr. W. N. Runn, Asheville, N. C.; Dr. Robert Wilson, Jr., Charleston, S. C.; Mr. C. E. J. Mooney, Memphis, Tenn.; Mr. Kendall Weisigner, Atlanta, Ga.; Dr. Gaston J. Greil, Montgomery, Ala., and Mrs. Edward McGehee, New Orleans, and secretary, James P. Kranz.

Mississippi Valley Conference on Tuberculosis.—The fifth session of the Mississippi Valley Conference on Tuberculosis will be held at Minneapolis and St. Paul, October 8-10, under the presidency of Mr. James Minnick, Chicago. The object of the conference is to bring up a closer relationship between antituberculosis agencies in the Mississippi Valley, and provide for the interchange of ideas and experiences; to strengthen and extend the work of the National Association for the Study and Prevention of Tuberculosis; to arouse the people of this valley to the need for concerted action, both public and private, against tuberculosis, and to effect closer cooperation between antituberculosis societies and other health agencies. The headquarters will be at the Radisson Hotel, Minneapolis, for October 8 and 9, and at the St. Paul Hotel, St. Paul, October 10. The states of Ohio, Michigan, Indiana, Wisconsin, Illinois, Kentucky, Minnesota, Iowa, Missouri, North Dakota, South Dakota, Nebraska and Kansas are included in the conference. On the second day the first annual meeting of the Mississippi Valley Sanitarium Association will be held, at which Dr. James W. Pettit, Ottawa, Ill., will preside. On the afternoon of October 10, the tuberculosis problems of the war will be the topic for discussion.

Poliomyelitis.—Since September 10, cases of poliomyelitis have been reported in the press from the following places: Chicago, September 21, there had been 142 cases, with 2 deaths; September 11, 3 cases and 3 deaths were reported from Rock Island; the state board of health at Des Moines, September 18, had received reports of 43 cases throughout the state, 19 of which had occurred at Davenport and vicinity, where the disease was epidemic. Other towns and counties in the state reporting cases were Deep Creek, Clinton County, Lynn, Plymouth, Fayette and Monona counties; Castana reported 3 deaths, with 1 case under quarantine; Knoxville, Marion County, reported several cases in the county; Schleswig had 1 case, September 15; Waterloo had 1 death, September 16; Kansas City, Mo., September 14, had 3 cases; September 15, Montana reported no cases since August 18. In Nebraska, September 14, 5 suspected cases had been reported to the state health authorities from Hebron, 2 from Dawson, 1 from Schuyler and 1 from Johnson; at Omaha there had been but few cases, and no alarm was felt. In New York City names and address of infantile paralysis patients are published so that parents may protect their children. The plan has worked well, it is said. Pennsylvania reported 1 case from Waynesboro, September 12, and 1 from Mahanoy City, September 14. There had been 107 cases in the state during August.

FOREIGN

Deaths in the Profession Abroad.—**F. Wullyamoz** of Lausanne, a pioneer in roentgenoscopy and surgery under screen control before the war, aged 40.——**R. Alvarez**, chief of the psychiatric clinic at Cordoba, Argentina.——**A. Biondi**, docent of medical pathology at the University of Naples, aged 71. From recent casualty lists in France: **P. Bournet, Bornet, Tardif, Zagrewski, Dagès, M. Gohier, Chambrelent** and **P. Patriarche**, all aide-majors.

New Medical Journal in Argentina.—The bimonthly, *El Monitor*, Santa Fe, Argentina, has appeared in a journal of forty-four pages divided into two parts, one devoted to medicine, surgery, hygiene and pharmacology; the other is given up to articles on chemistry, industrial hygiene and veterinary questions. The editor in chief is Prof. E. Escobar, who is director of the service for children's diseases at the public hospital and also of the National Industrial School. The journal aims to be a bi-monthly review of science and industry. The annual subscription is about $6.

The Gasoline and Coal Question in the Netherlands.—One of the subjects mentioned in the president's address at the recent annual meeting of the Netherlands Medical Association was the scarcity of gasoline and coal. The outlook for gasoline is dark, the committee in charge of this matter reported. The state "benzine-control commission" admits that the conditions are cause for concern, but that it was hoped to be able to supply physicians with about 40 per cent. of the amount they used in normal times. The new price regulation by Germany has cooperated in the grave condition, it is said. The state petroleum commission announces that physicians can be supplied at present with 8 or 10 liters of petroleum for professional use, but stricter regulations are impending. The local (the Hague) coal-control commission is giving out small units of coal for various places, and among them are physicians' offices and waiting rooms. The quantities thus taken are to be credited to the amount set aside for physicians, to be estimated later. After October, the gas and electricity supply is to come under the control of the coal-supply commission. As to obtaining fodder for horses owned by physicians, nothing had been settled at the time of the meeting.

LONDON LETTER

London, Sept. 1, 1917.

The War

DRASTIC FOOD CONTROL

The measures of food control taken have from time to time been previously reported in The Journal. Some of a most drastic character have just been taken, greatly extending the control beyond anything previously done. The object is to prevent "profiteering" (a term which has come into vogue since the war, and means making undue profits in consequence of opportunities furnished by the war). The maximum price, both wholesale and retail, at which the most important foods may be sold is now laid down by law according to schedules. Thus the maximum price at which Argentine, Canadian, American and Irish creamery butter may be sold is $41 for 112 pounds. This, of course, is the wholesale price. Any person other than the importer or maker may not sell butter at a price which exceeds by more than $2 a hundredweight the price paid by him or the first-hand price in force at the time, whichever is the lesser. With regard to retail sales, it is provided that no person shall sell butter at more than 5 cents a pound in excess of the cost to him, but an additional cent may be charged for giving credit or for delivery. From the terms of this order it may be assumed that the retail price of butter will vary from about 50 to 59 cents a pound. This is practically its present price, so that any advantage the order may have for the consumer will be in preventing a further increase in price. The cheese order applies only to wholesale prices of British-made cheeses. They must not be sold by a maker at prices exceeding $29 to $33 a hundredweight, according to the variety of cheese. No person other than the maker may sell at a price in excess of whichever is the lesser of the two following: (*a*) $1.50 above the price paid, plus the cost of transport, or (*b*) $2.50 above the first-hand price. The price of meat is similarly regulated. Beef now costs 42 cents a pound and mutton 36 cents. Bread now costs 24 cents for a 4-pound loaf, but according to a regulation about to come into force this price will be reduced to 18 cents. The price of wheat does not allow bread to be sold at this rate, and the government will bear the loss, which is estimated at about $100,000,000 per annum. This measure to keep "the staff of life" at a fixed price is designed to benefit the very poor, persons who unlike munition workers and others, are not receiving greatly increased wages in consequence of the war.

CIVILIAN PHYSICIANS IN THE ARMY

Sir Alfred Keogh, Director-General of the Army Medical Corps, proposes to establish a branch to deal with questions directly affecting territorial and temporary medical officers. It will be able to collect and collate information on the many problems raised by the incorporation of so large a number of civilian physicians in the Army Medical Service. The fact that they now constitute about eleven twelfths of the service is in itself sufficient to justify the new departure. It is understood that the intention is that the staff of the branch shall include a territorial and a temporary officer having recent experience of war conditions.

Bubonic Plague in the Port of London

The steamship *Matiana*, from Bombay, arrived at Gravesend, August 13. On the voyage, between July 14 and 28, there were nine cases of bubonic plague, with six deaths, among the crew, all natives of India. The bodies were buried at sea. Three convalescent or more chronic cases were taken off at Gravesend and removed to hospital. The crew was kept under medical observation, and another case occured which resulted in the death of the patient in hospital. The vessel called at Falmouth, August 11, but no cargo was discharged and no passengers were landed at that port. The ship remains at the official mooring station off Gravesend, and the cargo was discharged into lighters under supervision of the health officer of the Port of London sanitary authority, who is taking all necessary precautions.

The Campaign Against Venereal Disease

Considerable progress has been made with the organization of measures for the free diagnosis and treatment for persons suffering from, or suspected to be suffering from, venereal diseases. Between 140 and 150 hospitals in England and Wales have expressed their willingness to participate in the scheme of local authorities, and although in a few instances the authorities of important hospitals have been reluctant to inaugurate during the war any fresh arrange-

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ESKAY'S NEURO PHOSPHATES

Report of the Council on Pharmacy and Chemistry

For the information of the profession the Council has prepared and authorized for publication the following report on Eskay's Neuro Phosphates. W. A. Puckner, Secretary.

Eskay's Neuro Phosphates (Smith, Kline & French Co., Philadelphia) is offered to physicians under the claims that it contains alcohol, 17 per cent., and sodium glycerophosphate, 2 grains, calcium glycerophosphate, 2 grains, and strychnin glycerophosphate, 1/64 grain, in each dessertspoonful. It is called a "Nerve Tissue Reconstructive," and its advertising claims are based on the discredited theories that certain disorders are due to a deficiency of phosphorus in the nerve structure of the body, and that glycerophosphates are assimilated more readily than ordinary phosphates. This assumption was based on the knowledge that the lecithins, which form a part of the nerve structure, contained the glycerophosphate radical in the molecule. In line with this, Smith, Kline & French Co. aver:

> "Eskay's Neuro Phosphates is of marked value in many acute and chronic conditions, in nervous exhaustion following mental and physical strain, neurasthenia, paralysis, anemia, tuberculosis, marasmus, debility and wasting diseases generally, and the nerve-weakness of the aged. It is particularly useful in convalescence from acute diseases and in the nervous condition following la grippe."

In its report on "The Therapeutic Value of the Glycerophosphates" (*The Journal, Sept. 30, 1916, p. 1033*) the Council pointed out that the therapeutic use of the glycerophosphates was based on the assumption that the inorganic phosphates cannot supply the body's needs of phosphorus or that the use of organic compounds "spared" the system the necessity of making such synthesis. The report presented evidence to show that the glycerophosphates are not absorbed as such, but that they are split into inorganic phosphates before absorption. The Council showed that there was convincing evidence that the animal organism synthesizes its complex organic phosphorus constituents from inorganic phosphates, and that organic phosphorus is of no more value as a food than inorganic. Despite this the Neuro Phosphates advertising makes use of the fallacious assumption regarding the action of the glycerophosphates.

Pleading for the particular mixture represented by the proprietary, it is asserted that:

> "Sodium glycerophosphate is of special value in neurasthenia, Addison's disease, phosphaturia and phthisis."

and that calcium glycerophosphate "is employed in bone fracture, rachitis, tuberculosis and various wasting diseases."

The phosphorus content of 1/64 grain of strychnin glycerophosphate is ridiculously small. Yet it is asserted that this strychnin salt is of superior value because it combines the effects of strychnin with a "food-like form of phosphorus." Eskay's Neuro Phosphates has an acid reaction which is capitalized, thus:

> "Experiments have shown that the acid glycerophosphates are more rapidly absorbed and are more efficient than the neutral salts."

And as a further illustration of extravagant claims:

> "As a glycerophosphoric acid in the form of lecithin is normally present in spermatozoids, it is but natural that the glycerophosphates should exhibit aphrodisiac effects (as has been observed), but this result does not seem to obtain in all cases."

Is this a clumsy attempt to exploit this "nerve phosphate" as a "lost manhood" cure?

The Council held Eskay's Neuro Phosphates ineligible for New and Nonofficial Remedies because unwarranted therapeutic claims are made for it and because the administration of strychnin, calcium, phosphate and alcohol is not conducive to rational therapeutics, particularly when such a mixture is marketed under a name which indicates but one of its constituents.

K-Y LUBRICATING JELLY

Report of the Council on Pharmacy and Chemistry

Because of inquiries received, the Council has authorized publication of the following report declaring K-Y Lubricating Jelly inadmissible to New and Nonofficial Remedies.

W. A. Puckner, Secretary.

K-Y Lubricating Jelly (Van Horn and Sawtell, New York), originally advertised as a lubricant for instruments and the hands, is now also recommended as a therapeutic agent. If the claims for "K-Y" were limited strictly to such effects as result from the purely mechanical properties of a lubricant, it might be held that it would not come under the purview of the Council. The preparation, however, while introduced as a lubricant, is now offered for a broader field of use, and the manufacturers make claims which are not supported by any evidence available to the Council. Evidence the following, taken from a circular that accompanies the package:

> "K-Y allays smarting and burning at once through its pronounced soothing and cooling effects, and thus makes an admirable dressing for burns."
>
> "Many physicians make a practice of anointing the bodies of their measle and scarlet fever patients with 'K-Y', in this way affording gratifying relief from itching and irritation, and effectively preventing dissemination of infectious material."

And this from another circular:

> "I had one of the most troublesome cases of pruritus vulvæ that I had ever seen. I guess I must have tried everything and the case had been referred to me by another man, who had previously tried everything, including cauterization. Well, one day I was examining her, and of course K-Y on the speculum—the irritation seemed to quiet down, and the following day she said she felt no effects from it at all. Then later on, it returned, and I couldn't imagine what had done so much good, unless it could have been the lubricant, so I told her to buy a tube, which she did. Every once in a while she has a return of it slightly, but she just applies K-Y and clears it all up."

The manufacturers state that they do not know why K-Y is so soothing, but suggest:

> "Possibly the cooling action of the combination, and the effect of the 4% boric acid contained, are factors that enter. Be all that as it may, the fact certainly remains that oftentimes, after other local measures fail, 'K-Y' Lubricating Jelly gives relief."

Elsewhere it is claimed to be germicidal, and to give relief in other conditions, thus:

> "Diabetic and uremic irritations, not only of the genitalia, but of other parts, have been found fully as amenable as pruritus vulvae to the soothing influence of 'K-Y' Lubricating Jelly, especially if the previous application is removed with water every time a new one is put on."

The foregoing citations are obviously intended largely for the public, and make it plain that "K-Y" Jelly is not in the class of nonmedical and harmless external applications; on the contrary, these claims tend to create the impression that the spread of measles and scarlet fever can be *prevented* in the stage of desquamation. To place such statements in the hands of the patient supported by the tacit endorsement of a prescription is to create a false and dangerous sense of security and to lead to a failure to observe other and more important means of preventing dissemination of these diseases.

The Council held K-Y Lubricating Jelly in conflict with Rules 1, 4, 6 and 10, and authorized publication of this report.

The Medical Officer Must Be an Administrator.—The army medical officer of today must not only be a trained scientist but a capable administrator. In other words, his duties in the zone of advance, the line of communications, and the interior, are in every respect as onerous and exacting as those of the line or engineer officer, and the story of his accomplishment, in the present war, will, when told, make a brilliant record.—Lieut.-Col. C. C. McCulloch, Jr., U. S. Army: The Scientific and Administrative Achievement of the Medical Corps of the United States Army, *Scientific Monthly.*

Correspondence

OBSERVATIONS OF MEDICAL SERVICE ABROAD

To the Editor:—I have recently visited many European military hospitals, including first aid stations, clearing hospitals, and third line or base hospitals. In many places I have found American surgeons actively engaged and doing splendid service. In several large well-equipped hospitals the service is light and many beds are empty. In such cases the surgical staff is for protracted periods more or less inactive.

It is to be feared that at first men who had come from large hospitals in America, having enjoyed an active daily service normally, were surprised, not to say disappointed, to find time hanging heavily on their hands. This feeling was soon corrected and surgeons are now interesting themselves in the solution of problems of various types which are constantly developing.

Briefly the military surgeon of today must be forewarned that war is not waged for the purpose of filling hospitals, and he must be fully reconciled to wait patiently under his assignment. After an advance resulting in a large casualty list, he will lead a strenuous life for a more or less protracted period. Empty beds with idle ambulances in large number are not a regrettable feature of military life.

It should be further clearly understood that men who have specialized and who are highly trained will find their services acceptable at many points. But the average man, however capable, must win his spurs under new conditions before he can hope to become conspicuous in a foreign environment.

Thomas W. Huntington, M.D.,
Hotel Excelsior, Rome, Italy.

[Editor's Note.—Dr. Huntington (of San Francisco) is a member of the American Red Cross Commission to Italy. This committee consists of Mr. George F. Baker, Jr., chairman; Mr. John R. Morron, Dr. Victor G. Heiser, Dr. Thomas W. Huntington and Mr. Nicholas F. Brady.]

DRAFTING PREMEDICAL STUDENTS

To the Editor:—The question of the exemption of freshman medical students is one on which there has been much discussion, and perhaps the readers of The Journal would be interested to know the attitude of one who has been drafted, and called into service.

The Journal has been for some time my constant companion in my hours of leisure and in these times, at least, my consolation that I might find at the last moment some hopes of continuing my medical work next year.

The last number, that of September 15, contained a very encouraging letter from the dean of the University of Virginia, department of medicine, which prompted this letter. He has stated my case, as well as that of many more in the same predicament.

We were told when the war first broke out between the United States and Germany that medical students would not be subject to call in case of draft and that "premedics" might be considered as medical students. When the draft became a reality, and the exemption lists included no clause for us we were still told that it was only diplomacy that kept the government from declaring a class exemption of medical students. Some of us rather doubted this and spoke of entering officers' training camps; then the dean of the school of medicine came out with a letter from a high official from Washington stating for a fact that we were free. Now many of us had already had military training in various lines and could have easily earned our commissions but were told that we could better serve our country by staying in school and then giving her a trained instead of an untrained service. Some of the boys disregarded this and went to the camps; they are now going about with silver bars on their shoulders; proud that they were counted as worthy to be officers in the great National Army, while we who thought we were best serving our country by staying in school are going about with our hands on our hearts wondering what will be done with us next. In fact some of us have ceased wondering as we are called in the first draft. It is not as though we were trying to avoid the draft or hiding under the banner of our college, afraid to go. I venture to say that if the plain truth had been told us in the first place there would not have been one of us who would not have been in some branch of the service before the day of registration.

An objection raised is that the medical schools would be crowded with slackers and draft dodgers of every description. This immediately loses its significance when we realize that every medical school requires some premedic work and that premedic work no one would take who did not intend to pursue the further study of medicine. The fact that we entered last September in the premedical department of the university proves that we had then determined to study medicine, and hence according to all justice should be considered medical students, and exempt from draft under that clause.

It is not as though the government had no redress for those who tried to evade her orders by entering medical schools at this time; the questions of standards of scholarship and attendance could be brought to bear on all medical students in the freshman year at this time. The government could very easily require a certain minimum grade and a minimum standard of attendance, all those falling below either of which to be at once liable for call and military service. This could be very easily accomplished by utilizing the professors of military surgery that the government assigns to the various medical schools. So there is absolutely no excuse for such a drastic, not to say unjust and outrageous, procedure on the part of our government.

Furthermore, the demand for doctors at the end of the next four years is going to be just as great if not greater than it will be at the end of the next year and two following. This has been amply proved by authentic statistics available to all those who care to take the time to peruse the recent editions of the daily papers or, for the profession, the last three or four editions of The Journal. Under these circumstances it seems not only unjust but absolutely prohibitive and criminal that the government at this time should undertake to jeopardize the future healthful well-being of this country as well as those across the sea by exposing these young men to the dangers and possible casualties, not to speak of the many fatalities, of this war.

This does not exhibit on our part any lack of patriotism or love of country, but rather shows that we have the great welfare of the country at heart for the future, and should this war last—which God forbid—beyond the next four years, the need of physicians would be an obstacle that would be absolutely insurmountable. At any rate, the next two years would fit us to be of infinitely more value as assistants in the Medical Corps than we are now as riflemen. Any one can learn to shoot a gun in an hour but it takes much longer for one to acquire skill in manipulating a scalpel.

Phillip J. Beyhan, Chicago.

"RED CROSS" BASE HOSPITALS

To the Editor:—My attention was directed to a contribution by Dr. Joseph B. DeLee (The Journal, Aug. 24, 1917, p. 665), advocating the construction of military hospitals in France in the shape of a cross with roofs to be painted in red color. In view of the deliberate bombing of an American base hospital by German flyers and the resulting killing and maiming of innocent "noncombatants," the doctor's plan would produce the very opposite effect he aims at. The best plan is to make all sanitary formations and institutions as invisible as neutral tints can render them. In addition it would be wise to disperse the buildings of large institutions over a fairly wide area and to place them under the shelter of natural foliage, or artificial for that matter, schemes employed to hide artillery batteries from aerial reconnaissance. In view of the fact that antiaircraft guns are effective only when the machines fly at moderate height we may even have to go farther and construct hospitals under bomb proofs.

Time was when the emblem of the Red Cross stood for the humanitarian in warfare, but today it is a beautiful target for the enemy's policy of frightfulness. In the same sense the putting on of a brassard by sanitary personnel on the firing line would only tend to increase their mortality and casualty rate. I have in my field library a book entitled "Rules of Land Warfare." I read it before my last promotional examination some time ago, but I have not opened it since the present mobilization for obvious reasons.

Gustavus M. Blech, M.D.
Major, N. G., Ill., Camp Logan, Houston, Texas.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

EOSINOPHILIA

To the Editor:—1. What is the significance of eosinophilia? 2. What is its diagnostic and prognostic significance in arthritis, periarthritis and periostitis of the spine? 3. Does it occur in malignant diseases? 4. Please give references to the best recent books and articles on infections of the spine.

E. W., Evansville, Ind.

Answer.—1. Eosinophilia is physiologic in childhood, the average increase being about 1 or 2 per cent. above the normal adult finding. There are some racial distinctions. The natives of southern China show between 15 and 20 per cent. of leukocytes as eosinophils. Pathologic eosinophilia occurs in splenomyelogenous leukemia, in sarcoma, osteomyelitis, osteomalacia, chlorosis, secondary anemia following infection, extirpation of the spine, chronic splenic tumors, bronchial asthma, emphysema, pemphigus, eczema, psoriasis, urticarias, leprosy, herpes zoster, and other skin diseases associated with toxic agents. They are also sometimes found increased in scarlet fever, acute rheumatism and malaria, as well as sometimes in syphilis, gonorrheal infections and in forms of ovarian diseases with the exception of cancer. Any parasite, from pin worms to uncinarias, may cause an eosinophilia which is not necessarily constant, and does not bear any relation to the severity of the infection. 2. Its relation to infections of the bones would be of the same character as its relation to the infections and bone diseases mentioned in the previous answer. 3. No great weight could be attached to eosinophilia in making a diagnosis of malignancy. 4. The following are recent articles on infection of the spine:

L. P. Gould: Osteomyelitis of the Spine, The Lancet, 1917, **1**, 374.
D. N. Eisendrath: Osteomyelitis of the Spine, American Surgeon, 1917, **65**, 147.
A. Kinder: Osteomyelitis of the Spine, New Zealand Medical Journal, 1915-1916, **14**, 215.

CHOICE OF ANESTHETIC—RESPONSIBILITY

To the Editor:—(a) Please inform me who should make the choice or selection of an anesthetic for a hazardous surgical case, the expert anesthetist or the operating surgeon?

(b) On whom does the responsibility rest if a patient should die from an anesthetic, on the operating surgeon or on the expert anesthetist?

Thomas G. Allen, Philadelphia.

Answer.—(a) The operating surgeon.
(b) On the operating surgeon.

Tetanus in Court Plaster.—Investigation by the Hygienic Laboratory of the Public Health Service following press reports of infection with tetanus from court plaster, resulted as follows, as given in *Public Health Reports*, September 7: Out of thirteen specimens examined, two were found to be contaminated with tetanus bacilli. The specimens examined were procured from drug stores in the original packages as they go to the consumers. It was found that court plaster is not clean in the surgical sense, but whether the contamination with tetanus bacilli occurred during the process of manufacture through infected ingredients will be the subject of another investigation. It is not believed that the contamination was intentional. The report of the laboratory investigation is given in full in the publication referred to.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arizona: Phoenix, Oct. 2-3. Sec., Dr. John Wix Thomas, 306 Goodrich Bldg., Phoenix.

California: Los Angeles, Oct. 9-13. Secretary, Dr. Charles B. Pinkham, State Capitol, Sacramento.

Colorado: Denver, Oct. 2. Sec., Dr. David A. Strickler, 612 Empire Bldg., Denver.

District of Columbia: Washington, Oct. 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington, D. C.

Georgia: Atlanta, Oct. 9-11. Sec., Dr. C. T. Nolan, Marietta, Ga.

Idaho: Pocatello, Oct. 2. Sec., Dr. Charles A. Dettman, Burke.

Illinois: Chicago, Oct. 9-11. Superintendent of Registration, Mr. F. C. Dodds, Springfield.

Iowa: Des Moines, Oct. 9-11. Sec., Dr. G. H. Sumner, State House, Des Moines.

Michigan: Lansing, Oct. 9-11. Sec., Dr. B. D. Harison, 504 Washington Arcade, Detroit.

Minnesota: Minneapolis, Oct. 2-5. Sec., Dr. Thomas S. McDavitt, Lowry Bldg., St. Paul.

Montana: Helena, Oct. 2. Sec., Dr. William C. Riddell, Power Bldg., Helena.

National Board of Medical Examiners: Chicago, Oct. 10-18. Sec., Dr. J. S. Rodman, 2106 Walnut St., Philadelphia.

New Jersey: Trenton, Oct. 16-17. Sec., Dr. Alexander MacAlister, 438 E. State St., Trenton.

New Mexico: Santa Fe, Oct. 8. Sec., Dr. R. K. McClanahan, East Las Vegas.

New York: Albany, Buffalo, New York City and Syracuse, Oct. 2-5. Chief, Examinations Division, Harlan S. Horner, State Education Bldg., Albany.

Oklahoma: Oklahoma City, Oct. 9-10. Sec., Dr. Ralph V. Smith, 502 Daniel Bldg., Tulsa.

Porto Rico: San Juan, Oct. 2. Sec., Dr. M. Quevedo Baez, San Juan.

Rhode Island: Providence, Oct. 4-5. Sec., Dr. Byron O. Richards, State House, Providence.

Utah: Salt Lake City, Oct. 1-2. Sec., Dr. G. F. Harding, Templeton Bldg., Salt Lake City.

Wyoming: Laramie, Oct. 10-12. Sec., Dr. H. E. McCollum, Laramie.

Book Notices

Physical Chemistry of Vital Phenomena, for Students and Investigators in the Biological and Medical Sciences. By J. F. McClendon, Assistant Professor of Physiology in the University of Minnesota. Cloth. Price, $2 net. Pp. 240, with 30 illustrations. Princeton: Princeton University Press, 1917.

Physical chemistry, that lusty infant prodigy, offspring of the union of physics and chemistry, has already come in many instances to the assistance of the practitioner, giving aid in diagnosis and helping in the explanation of physiologic processes. One has only to recall the most recent innovations of the determination of the hydrogen ion concentration of the blood and spinal fluids, the diagnosis of syphilis by the colloidal gold test, or the distinguishing of epidemic cerebrospinal meningitis from tuberculous meningitis by the cataphoresis of the proteins of the spinal fluid. Hence a book of this title should attract the interest of practitioners and students alike. This book, however, makes no pretense to having been written for clinical men. It is rather intended for advanced students who already understand much about the subject. It contains many interesting facts for such students, and quite a long and useful literature list at the back in which both titles and authors are cited. It treats of such things as osmotic pressure, adsorption, hydrogen ion determinations, surface tension, enzyme action, permeability of cells, anesthesia and narcosis, cytolysis and disinfection, ameboid motion, muscle contraction, oxidations, artificial parthenogenesis and cell division. Truly an appetizing bill of fare, if only well cooked and seasoned!

But alas for the "if." It is not well cooked; much of it, indeed, is quite raw, and the seasoning has been generally omitted, so that even a robust appetite will not make it all palatable. This is not saying that there is not much that is good in the book and many facts that are stimulating and instructive. The chapter on the method of hydrogen ion determination is decidedly worth while; and the book is certainly no worse than many German books on similar lines. Perhaps the title makes us expect too much, and in the outcome we have so little—so little except words, and of these there are so many and such long ones! There is hardly a properly formed scientific statement in the first chapter. It is full of conclusions and interpretations stated as if they were facts, and of conclusions which do not follow from the premises. Throughout the book there is a scarcity of objectively described facts. Almost never do we find a clear, simple statement of what the objective facts really are; always these facts are obscured by interpretations, or the interpretations are substituted for them.

The author, in accordance with the prevailing style of the hour, attempts to explain all the phenomena of life by inventing what he calls a plasma membrane and putting it around a colloidal solution and calling it protoplasm. Since he is the inventor of this membrane, it is his privilege to make it as ingenious as he can. The main differences between the theories of the physical-chemical zoologists and physiologists at the present time consist in the ingenunity of their imaginary membranes. If only these membranes are sufficiently complex, it becomes possible to explain all the phenomena of life by means of them. If any new facts are discovered which the old membrane cannot account for, it becomes the simplest thing in the world to take that membrane off, to devise a new one with more modern improvements, wrap it about a colloidal solution of a nondescript character, and there you have protoplasm! This membrane has pores in it so graduated in size or otherwise so constructed that they let through positive but not negative particles, and, behold! there is the explanation of the electrical phenomena of protoplasm. Or sometimes the pores close, and then you have anesthesia. And so on. To explain how this is all possible it is only necessary to fall back on surface tension. Surface tension explains all things. This is a perfectly safe refuge and one calculated to satisfy the greatest doubter, for no one understands what surface tension may be doing in such complex systems, and almost no one understands it even in the simplest cases. In saying this we do not aim especially at the author of this book, for he has only put together the publications and conclusions of other men; but we are aiming at the whole glib, superficial school of biologists, who pretend to solve fundamental problems of the greatest complexity.

This book is typical of much of modern biology. It is not possible to say about it anything worse than this. Biology is in a period of inflation. Real values are obscured. Worthless properties are being worked as fabulously rich mines, but the ore contains only a trace of real metal. A little glitter and some mathematical formulas lead astray all but those who have been already once deluded. Words take the place of real explanations; we have purely verbal solutions of the most abstruse problems. These words lull us to sleep; they form a wire entanglement, serving to keep out truth and light.

One comes back from reading a book of this character, and most books on this subject, with the feeling of having been wandering in a terrible morass. Some of the ill smelling mud still clings to one. "Permeability" and "adsorption" are words covering a multitude of scientific sins. This must truly be the red light district, the demi-monde of science, which intoxicates and ruins its habitués. This realm of biology is truly that demiscience which Paul Shorey anathematizes. Words juggled from one meaning to another; conclusions unrelated to their premises; a trackless waste—the biologic authors wander through this series of sink holes, struggling out of one only to fall into another, and the reader, if he is not sure of foot and alert of eye, falls with them.

THE TREATMENT OF TABETIC ATAXIA BY MEANS OF SYSTEMATIC EXERCISE. By Dr. H. S. Frenkel, Medical Superintendent of the Sanatorium "Freihof" in Heiden (Switzerland). Second English Edition by L. Freyberger, J.P., M.D., M.R.C.P. Cloth. Price, $3 net. Pp. 209, with 130 illustrations. Philadelphia: P. Blakiston's Son & Co., 1917.

The first edition of this book, which is an adaptation and not a translation of Dr. Frenkel's book, appeared in 1902. In the second edition, revised by Dr. Freyberger, "redundaces" have been removed, a few unnecessary illustrations taken out, and the remainder partly regrouped. "Notes on the medical treatment that is often required during Frenkel treatment" are added by Dr. Freyberger.

A number of changes in the make-up of this edition reflect credit on the former one. In size it conforms more readily to standard volumes; the illustrations are not so clear. The legends of some of the diagrams which were left untranslated in the former edition are rendered into English. Some of the measurements of diagrams are omitted, and in some errors appear, as 9 inches for 63 ct. Certain important statements marked by italics in the former edition are left unemphasized.

The text, as in the former edition, presents a clear and comprehensive exposition of a method of treatment which deserves wider recognition and more general application. Frenkel introduces in a general part his description of the method by broad definitions of coordination, and ataxia. He reviews the theories of the causes of ataxia, and describes and upholds the sensory theory. A full description of methods of examining the sensibility is given, and an extensive description of muscular hypotonia, which plays so important a rôle in the disability of the tabetic, is presented.

In a special part, the mechanism of movements of the human body is described, so that the rationale of the following directions for treatment is established, and the exercises may be followed logically and clearly. The practice rooms and apparatus, which are very simple, are described, and the exercises classified, minutely explained and commented on freely. The large number of illustrations assists in making the book one which, if read, cannot but lead to a clearer understanding of tabetic ataxia by the general practitioner, and to the more consistent employment of reeducational methods by specialist and general practitioner as well.

It is impossible to omit a criticism of the more or less parasitic notes on the medical treatment of tabes dorsalis which are added by Dr. Freyberger. Among other things, the author demands that before the case should be definitely pronounced nonsyphilitic, an examination of the spinal fluid should prove "an entire absence of spirocheta pallida," whereas nothing is said of the cell count, the colloidal gold chlorid test, or globulin tests which, in contrast to the *Spirochaeta pallida*, are so frequently found pathologic.

Just why intravenous or intramuscular injections of antisyphilitic medication are interdicted during the period of Frenkel treatment is left as great a mystery as why we should defer Frenkel treatment until "the effects of the antisyphilitic treatment are beginning to be well established."

The author states that the following preparations will be found useful in the preliminary treatment, and he includes with salvarsan and neosalvarsan such agents as collargol, sodium and gold chlorid, and various proprietary combinations, as Enesolum, Iodglidinum, and Ioha. Although he states that salicylate of mercury is the best substitute for mercurial inunctions or injections of mercurial oil, he describes neither one.

The author's preference for proprietary remedies is seen in his collection of choice drugs for symptomatic treatment: Trivalium, Arsentriferrolum, Bromo-lecithinum, Diplosalinum, Hedonalum, etc. Combretum for morphinism occupies as much space as is devoted to salvarsan.

Nothing at all is said of intraspinal treatment. Apparently Freyberger does not believe that all cases of tabes dorsalis are syphilitic, as he says that "iodides are excellent tonics in nonsyphilitic cases of tabetic ataxia."

An adequate criticism of this chapter would take up more space than the chapter itself, which might better have been omitted.

Habit.—Habit keeps us all within the bounds of ordinance, and saves the children of fortune from the envious uprisings of the poor. It alone saves the hardest and most repulsive walks of life from being deserted by those brought up to tread therein. It keeps the fisherman and the deckhand at sea through the winter; it holds the miner in his darkness, and nails the countryman to his log cabin and his lonely farm through all the lonely months of snow. In most cases, by the age of 30, the character has set like plaster, and will never soften again.—William James.

Social Medicine, Medical Economics and Miscellany

BARON LARREY, THE FRENCH ARMY SURGEON

HOWARD D. KING, M.D.
NEW ORLEANS

Seventy-five years have elapsed since the death of Baron Larrey, surgeon-in-chief of the armies of Napoleon. In the annals of military surgery Larry will forever stand preeminent as a leader. In this hour of stress and conflict a brief biography to the famouns French army surgeon should prove timely.

D. J. Larrey was born in 1766, at Beaudéan, near Bagnères-Adour, Haut Pyrénnes. His parents were in modest circumstances, but of good peasant stock. At the age of 13, with very little previous education, he was sent to study under his uncle, who was surgeon and professor of surgery of the General Hospital at Toulouse, and also an associated correspondent of the Royal Academy of Surgery at Paris. At Toulouse under the guidance of this relative he passed through the usual medical courses. In 1787 he went to Paris, and was in this city only a few days when he received the appointment of assistant surgeon in the navy, a post which he accepted only because it enabled him to indulge his natural taste for traveling. Larrey was ordered to join his ship at Brest, but his resources were so low that he walked from Paris to that port, and on his road he visited Laval, sought out the house where Ambroise Paré, the father of French surgery, lived, desired to see his chamber, and, yielding to the delusion of a warm imagination, almost fancied his great predecessor to be present.

APPOINTMENT AS SURGEON IN NAVY

On his arrival at Brest he was subjected to a second examination, and passed in such a distinguished manner that, contrary to all precedent, he was appointed full surgeon at the age of 21, to a small frigate, *La Vigilante*. The ship being delayed in port during the winter he employed himself in giving lectures to the young students in anatomy and surgery. In the following April the ship sailed for Newfoundland, to protect the cod fisheries, and to cruise off the coasts of North America. This voyage was without event, save that on reaching Brest in 1788 the provisions had run so low that each member of the crew was reduced to a daily ration of 4 ounces of biscuit and a bottle of putrid water. Again on shore Larrey immediately set off for Paris, and studied clinical surgery under Sabatier and Desault, the latter of whom he speaks of as a surgical genius, and as one to whose instruction he felt greatly indebted.

At this critical period the first clouds portending the French revolution were fast gathering in the political horizon, and civil dissensions had already risen to such a height in Paris that several battles were fought in the garden of the Tuilleries, at the Bastille, and in the Champs de Mars. A large number of the wounded combatants came under the immediate care of Larrey, who thus early observed that delay in amputation after certain gunshot wounds caused an increase in tetanus. He also gave a great deal of his time to the study of the problems of infections and bone necrosis.

CREATION OF AMBULANCE VOLANTE

The invasion of France by the continental powers shortly following, he was appointed full surgeon to the Army of the Rhine, commanded by Marshal Luckner, and he joined on April 1, 1792. It was in this campaign that he observed the faulty arrangement of the ambulance service, which it was customary to station a league in the rear of the soldiers, so that the wounded were left undressed and unattended till after the battle, when they were removed to the regimental hospitals. Owing to the great obstruction of the roads by baggage and the movements of the troops, it was often days before the wounded received surgical assistance, and as a consequence many perished for want of timely first aid. Larrey proposed to General Custine to establish an *ambulance volante*, or a means by which the wounded might receive first aid on the battlefield. This reform produced a great sensation in both military and medical circles. At the close of the campaign on the Rhine the military surgeons were highly spoken of by General Beaurharnios, in his despatches to the Directory, and Larrey was ordered to Paris to complete his *ambulance volante*, and to adapt and introduce it into the other armies of the Republic.

LARREY'S SERVICE IN EGYPT

In the year 1797, after having seen service in Spain, he received orders, apparently at the request of Napoleon, to set out for Italy, and to establish the *ambulance volante* in that army; but hardly had he arrived at headquarters when the peace of Campo Formio was signed. Next Bonaparte committed the great military error of transporting a French army to Egypt, at which time he demanded that Larrey join the expedition. In this position Larrey earned the high regard of the Corsican. He was with Bonaparte when he crossed the Red Sea and it was at this time that Larrey nearly lost his life by drowning.

AN OFFICER OF THE LEGION OF HONOR

The peace of Amiens saw Larrey back in France, and on his arrival in Paris he found Napoleon first consul, who not only ordered Berthier, in a public document, to express his satisfaction at the zeal and manner in which he had fulfilled his public duties, but confirmed all the medical officers he had promoted in Egypt, named him surgeon-in-chief to the Consular Guard, and presented 1,500 francs to Madame Larrey. On Napoleon assuming the purple Larrey was one of the first named of the Legion of Honor. Bonaparte afterward created him an officer of the Legion, presenting the decoration with his own hands. Following this appointment Larrey was made Inspector General of the French Army. But he was to be still further honored, for after the battle of Eylau he was promoted to the rank of Commandant of the Legion of Honor, Chevalier of the Iron Crown, and, after the battle of Wagram, he was made Baron of the Empire, with a pension of 5,000 francs. At this juncture his good fortune ceased, and on the first deposition of the emperor he proposed to retire with him to Elba, and to share his banishment, but Napoleon opposed this mark of devotion in his faithful friend. "You belong to the army," he said, "and must continue with it; but I part from you with the deepest regret."

Almost immediately after his escape from Elba, Napoleon despatched a messenger to the Tuilleries for Larrey, and after displaying the most touching regard and satisfaction at seeing his old friend, declared, "I hope soon to have the opportunity of recompensing you for the sacrifices you have made, and for the services you have rendered the wounded." One of those *coups de theatre* with which the returned emperor attempted to support his power was summoning deputies from the different provinces to receive a tricolored standard. Larrey was among those elected for the Haut Pyrénnes, and the emperor selecting him from the rest, placed the emblem of French military glory in his hands, expressing his delight in entrusting it to a man who honored humanity by his disinterestedness and courage, and whom he had often seen in the parching deserts of Lybia giving to others the water and wine he greatly needed for his own support.

When the preparations for opening the fatal campaign of 1815 were completed Napoleon sent General Drouet to Larrey with orders to join the army, and more especially to direct the ambulance of the guard, and to be near his person. It was at Waterloo after the tide of battle had turned against the French, and the charges of the British cavalry had nearly reached the French ambulances, Napoleon still remembered his friend, and sent one of his aides-de-camp to point out to Larrey a cross road by which he might escape. He had not proceeded very far when he was chased by the Prussian cavalry, but was fortunate to outdistance his pursuers. In his flight he was thrown from his horse to the ground where he lay for some time unconscious. On recovering consciousness he again attempted flight but fell in with the Prussian cavalry a second time and was made prisoner at Sambre. The Prussians stripped him of everything but his redingote, and in this forlorn state he was happily mistaken for Napoleon, and carried with his hands tied behind him to Commandant Bulow, by whom he was recognized. Larrey had saved the life of Prince Blucher's son, who had been seriously wounded, and made prisoner during the German campaigns, and this act of kindness being remembered Larrey was now treated with much consideration, had his wounds dressed, more cleanly and commodious quarters assigned him, and afterward obtained permission to proceed to Brussels, in order that he might succor his wounded countrymen.

THE DOWNFALL OF NAPOLEON

After the downfall of Napoleon at Waterloo Larrey suffered many humiliations at the hands of the Bourbon dynasty. He was deprived of his office of inspector general, and all of his pensions cut off. He was retained, however, as surgeon of the guard, for fear, as he alleged, that the troops would mutiny at his removal. From 1815 to 1818 his position was most trying, for among his misfortunes he lost his mother, and a favorite brother, a surgeon at Nismes. In 1818 his fortunes appeared to be on the mend. The pension of 3,000 francs granted him by Napoleon for services at Lutzen, Wurchen, and Wagram was restored to him by unanimous decree of the legislative assembly. The declining years of his career, also, were cheered by many honors and distinctions. The king of the Belgians invited him to organize the ambulance of his army, while Louis Phillippe granted him the decoration for his services to the wounded in the three days of July. He also made trips to Italy and England. His last official service to the French government was an inspection of the French hospitals at Algeria. On his return from Africa he set off for Paris to make his report to the governmen, but died en route at Lyons, July 25, 1842.

HIS SERVICE TO MEDICINE

Larrey's claims to distinction as a surgeon are great. That he was admirably fitted for the high professional offices he attained is today admitted by the whole surgical world. Up to the day of his death no one ever held a higher place as a military surgeon. It is impossible to study his works without being convinced of his sound sense and good judgment, and the rapid manner in which he interpreted disease and applied the resources of his art to the relief of the patient. On account of his boldness, which was coupled with a most skilful technic, Larrey enriched surgery with many and far reaching advances.

Before the last Revolutionary Wars there were scarcely more than two or three examples of amputation at the shoulder joint, an operation first performed by Ledran. This operation, however, Larrey frequently and repeatedly performed, and even extended, by removing large sections of the shoulder and scapula, and with such success that out of 111 cases, ninety-seven were cured. Modern hospital records show no greater achievement than this wonderful list of successes. The facility with which he performed this operation was quite wonderful, the limb being removed in two minutes, and the loss of blood negligible.

Up to Larrey's time it was the custom to delay amputations until the line of demarcation had formed. The impatience of Larrey refuted the wisdom of this surgical dogma, and with the French army surgeon it was always a case of now or never. Larrey had profited by the surgical experience of the surgeons who had participated in the American Revolution and the different Indian conflicts, who, having no great hospitals to which to send their wounded, performed most of their major operations on the field, and had lost very few men. These observations led him to adopt, as soon as the *ambulance volante* was introduced into the French armies, the practice of immediate amputation in the field. Larrey declares the advantages of this procedure to be great in that shock was considerably lessened, and the cases of tetanus considerably reduced. From the foregoing it can be seen that the trench dressing station of today is really an American institution revived. How much does modern military surgery owe to the medical men who served under Washington, Greene, Putnam, Wayne?

In the dressing of wounds it was his invariable custom, after cleansing away débris and trimming the parts, to apply loose bandages, and to allow them to remain on several days without being disturbed. Once the bandage was secured it was followed up by pouring some cold lotion over it till it became well saturated through and through. The wounds were always kept moist. This mode of treatment resembles, at least to some extent, the tissue lavage methods now in general use in war hospitals.

As a practitioner he was most resourceful in his therapeutic endeavors. His practice in syphilis was beneficial to the patient despite the criticism it engendered on the part of his confrères. Larrey was one of the first to use the mercurial ointment on the soles of the feet and other parts of the body. For this he was violently assailed in some quarters. His knowledge of syphilis was particularly acute, especially as to the effect this disease had on the arterial system.

As a surgeon he was highly practical, but if we view him as a physiologist or philosopher we shall find many false shadows. Let us look at his character as a man, and take that character from one best able to appreciate it, from Napoleon himself. It is well known that Napoleon left to Larrey by his will 100,000 francs, at the same time recording the notable fact that Larrey was the most virtuous man he had ever known. The manners and person of Larrey were endearing and simple. He will stand forever as one of the bright ornaments of French surgery. His place is beside Pasteur and the great Paré. His long and brilliant career in the military service of France entitles him to a niche in that hall of fame consecrated to those whose motto consists of the single word—duty.

820 Baronne Street.

Dehydration of Foods

It would seem that the old fashioned method of drying fruits and vegetables, which became almost obsolete since the rise of the modern canning industry, is again coming into vogue and is being extended to food products not heretofore subjected to this process. Instead of the primitive methods of the household in former days, however, improved, scientific and mechanical methods are being employed and are being adapted not alone to factories, but to the home and the farm, where products over and above present market demands may be dehydrated and placed on the market as required. Considering the large percentage of water in all fruits and vegetable products amenable to dehydration, the saving in bulk and weight is a transportation economy, as well as one of freight costs to the consumer, which is of great importance under present circumstances. As examples of products not heretofore saved as food, in addition to about all the vegetables and fruits raised on the farm, are beet tops, the outer green leaves of the stalks of celery, fruit on the point of becoming overripe, undersized fruits and vegetables which would otherwise waste, and many other products which will suggest themselves to farmers and gardeners. Practical and efficient apparatus have now been devised to dehydrate all such products cheaply and effectively on the farm. One such apparatus, described in the *Scientific American*, consists of a series of trays for containing the fruit or vegetables, one tray superposed on the other. The hot air as the agent of dehydration is applied to the bottom tray and passes upward through all the other trays, not passing off until completely saturated, thus economizing in the matter of heat. The contents of the lower tray become cured first, when this tray may be removed, the remaining trays dropped to occupy this space, and another tray of fresh product added at the top. The process thus becomes a continuous one. In the process of dehydration about 10 per cent. of the water is allowed to remain in the products, which prevents their structural disorganization and preserves their flavors and other natural qualities when cooked. The possibilities of the dehydration process in augmenting and making available large quantities of food heretofore not utilized to the best advantage will be apparent.

Medicolegal

Physicians May Testify as to What Is Learned After Treating Patients

(Strafford et ux. vs. Northern Pac. Ry. Co. et al. (Wash.), 164 Pac. R. 71)

The Supreme Court of Washington says that in this personal injury case a physician was asked to describe, and did describe, the nature and extent of an examination he made while the injured plaintiff was a patient in the hospital under his care, but was expressly warned by counsel not to state what he found as the result of his examination, and heeded the admonition. After he had answered counsel's questions he was asked whether he had made two subsequent examinations of the plaintiff and he stated that he had, but not as her physician or surgeon, or for the purpose of treating her, but for the purpose of enabling him to testify as to her condition. As to discoveries made at these two examinations he was ermitted to testify fully. Clearly this was not error. As to o examinations he was as competent to testify as physician or surgeon would be under the same ces. The fact that he had previously treated the id not preclude him from testifying to matters he sequently learned as to her condition under circums not precluding his right to testify. In order to render ysician incompetent, the information he is called on to sclose must have been acquired while he was attending the patient in a professional capacity for the purpose of treating her ailments. The privilege when the examination is made by the physician for the express purpose of publishing the results; such, for example, as testifying in an action for personal injuries. There was therefore no error committed in the admission of the physician's evidence. The same was true of the testimony of another physician who, while he had formerly treated the plaintiff in a professional capacity, testified to no condition the knowledge of which was acquired by him while so treating her. He also subsequently examined her under circumstances similar to those related of the physician first mentioned, and testified to conditions learned at such examination. The statutory rule was not violated in permitting him so to do.

Barring of Action for Roentgen-Ray Burn

(Ogg vs. Robb (Ia.), 162 N. W. R. 217)

The Supreme Court of Iowa affirms a judgment in favor of the defendant that the plaintiff's alleged cause of action was barred by the statute of limitations. The court says it was alleged that in 1901 the plaintiff, then under 17 years of age, broke his right wrist. In July of that year, the defendant called the plaintiff into his office, without the knowledge or consent of the plaintiff's parents, and experimented on him with a Roentgen-ray machine to secure pictures of his hand and wrist. That the defendant continued for ten days in said experiments, and used the Roentgen-ray machine on the plaintiff's hand and wrist many times and made long and close exposures. That as a result the skin on the hand and wrist became discolored. That the defendant then informed the plaintiff and his parents that the use of the Roentgen-ray machine caused such discoloration, and then falsely and fraudulently informed them that this discoloration was of no particular consequence and would be temporary in its effects, fraudulently concealing from them the true effect of radio-exposure produced by the Roentgen-ray machine. That the defendant then treated the discoloration for a time and it apparently disappeared, leaving a scar, but with the usual use of the hand. That the plaintiff and his parents fully relied on the statement and advice of the defendant as to the temporary effect of the Roentgen rays, and nothing further was done in regard thereto until 1912. That the use of said machine by the defendant produced a cancerous condition which was latent until 1912, and the plaintiff had no knowledge of said condition until then. That then the tissues of the right hand where the Roentgen rays had been applied broke down and became an epithelioma or malignant cancerous growth, which caused great pain and necessitated the amputation of the right forearm. Was the plaintiff's cause of action concealed by the statement of the defendant that the original burning was but temporary and was of no particular consequence, and that the defendant fraudulently concealed the true effect produced by the use of the Roentgen-ray machine? The plaintiff alleged that he was burned in 1901 and, as he alleged, by the negligence of the defendant. This fact was known to the plaintiff and his parents. All damages which subsequently developed were traceable to and based on that act. By the original act the plaintiff was injured, and, as the petition alleged, by the negligence of the defendant. He would have been entitled to some damages at that time; and, if it be true that cancer necessarily and in all cases is the result of such burning, or if cancer is the probable result, such fact could be shown as bearing on the question of damages in an action for the original injury. If cancer is not the necessary or probable result of such burning, then the defendant's statement would be more or less of an opinion, and in that case the fact that later and in 1912 a cancerous condition did develop and the plaintiff's damages might thereby be increased, would not constitute a new cause of action. It would seem then that the plaintiff's cause of action accrued at the time of the original injury.

Giving Egg and Toast to Typhoid Fever Patient

(Ennis vs. Banks et al. (Wash.), 164 Pac. R. 58)

The Supreme Court of Washington reverses a judgment for $9,000 damages that was rendered in favor of the plaintiff on the second trial of this case, after this court had reversed a judgment for $1,500 rendered on the first trial. The court says that defendant Banks was called on the 22d to see the plaintiff's son, whom he found suffering with typhoid fever, and who was the next day removed to a hospital conducted by said defendant. From that time until the 14th of the following month the patient was a very sick man. Gas would accumulate, almost constantly, in his stomach and bowels, and, on the 11th, the defendant called into consultation two other physicians. It was then concluded that an operation was necessary, in order to remove the gas, but the plaintiff would not consent to it. The patient had before this been fed on a milk diet, which apparently did not agree with him, and was subsequently fed on beef broth. The latter diet seemed to agree with him better than the milk diet. On the 12th and 13th, the patient seemed to be somewhat improved. On the 14th, the defendant caused to be prepared a slice of bread, about three inches square, from which the crust was removed, and which was toasted and soaked in boiling milk until soft, and on it was placed an egg that had been broken into hot water and allowed to coagulate. The patient ate about two-thirds of the egg and toast. About three hours afterward, an eggnog was given to the patient, who then vomited the eggnog, the egg and toast. The patient at that time seemed to be worse. The plaintiff then had the patient removed to her home, about a block away, and called a homeopathic physician, who treated the patient two days, when he died. Afterward, this action was brought, based on alleged malpractice in feeding the patient the poached egg and toast.

The evidence showed that the patient's death might have been due to one of three causes: first, the disease itself; second, the carrying of the patient from the hospital to another place, and third, the change of diet. Under the rule established when the case was before this court previously, the court is constrained to hold that it was for the jury to determine which of these causes resulted in his death, and whether the defendant, in administering the toast and egg, was guilty of malpractice. But instructions on general negligence, which, in effect, told the jury that, for want of ordinary care generally, the defendant was liable, should not have been given, as the jury were thereby led to believe that they might consider any acts of negligence, or general acts, and make up their verdict outside the issues of the case.

An instruction to the effect that, in determining ordinary skill and diligence, the advanced state of the profession at the time might be considered, was misleading, since there was no evidence in the case that there was any advanced state of the profession at that time. Again, each school of medicine is entitled to practice in its own way, and because one does not use the methods of the other is no reason for holding the one for malpractice. The issue in this case was a simple one. It ought to have been covered in, at most, a half dozen instructions, to the points that unless the jury could say that the patient died solely from the effect of the soft toast and egg which was administered to him, and not from the disease, or from being carried from the hospital, at the stage of the disease he was then in, there could be no recovery of damages; that there could be a recovery only in case the giving of the toast and egg was the prime cause of the patient's death, and the defendant knew, or should have known, such result would follow. Before the plaintiff would be entitled to recover for malpractice, the jury ought to have been told that they must find the defendant did not use his judgment in administering the egg and toast, under the circumstances, but was guilty of malpractice in administering such toast and egg at that time.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Oto-Laryng., Pittsburgh, Oct. 29-30.
Am. Assn. for Study and Prev. of Inf. Mort., Richmond, Va., Oct. 15-17.
American Association of Railway Surgeons, Chicago, Oct. 17-19.
Delaware State Medical Society, Middletown, Oct. 8-9.
Kentucky State Medical Association, Louisville, Oct. 16-18.
Medical Association of the Southwest, Kansas City, Oct. 15-17.
Minnesota State Medical Association, St. Paul, Oct. 10-12.
Mississippi Valley Medical Association, Toledo, O., Oct. 9-11.
Nevada State Medical Association, Reno, Oct. 18-19.
New Mexico Medical Society, Las Cruces, Oct. 4-6.
Southern Medical Association, Memphis, November 12-15.
Vermont State Medical Society, Barre, Oct. 11-12.
Virginia State Medical Society, Roanoke, Oct. 23-26.
West Virginia State Medical Association, Fairmont, Oct. 2-4.
Wisconsin State Medical Society, Milwaukee, Oct. 3-5.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

September, LXXVI, No. 3

1 Development of Prenatal Care in Borough of Manhattan, New York.—R. W. Lobenstine, New York.—p. 381.
2 Maternal Mortality from Childbirth in United States and Its Relation to Prenatal Care. G. L. Meigs, Washington, D. C. —p. 392.
3 Prenatal Care; Opportunity for Medical Profession. A. B. Emmons, Boston.—401.
4 Some Economic Hints from France. T. C. Merrill, Washington, D. C.—p. 405.
5 Obstructive Jaundice. C. G. Heyd, New York.—p. 409.
6 Rupture of Uterus; Report of Cases. W. A. Scott, Toronto.—p. 423.
7 An Operation for Procidentia in Nulliparous Woman. W. M. Ford, New York.—p. 438.
8 Case of Antepartum Mammary Hyperemia Due to Unrecognized Malignant Disease. G. W. Kosmak, New York.—p. 444.
9 Case of Papillocystoma of Ovaries. A. Peskind, Cleveland.—p. 448.
10 Results of Interposition Operation. D. R. Ayres, New York. —p. 451.
11 Postoperative Treatment of Vesicovaginal Fistulae. C. G. Child, Jr., New York.—p. 455.
12 Gas Bacillus Infection; Case of Acute Endometritis and Septicemia Following Parturition. S. Graves, Louisville, Ky.—p. 458.
13 Cervicoplastic Treatment of Sterility. A. Sturmdorff, New York. —p. 469.
14 Retained Placenta. E. P. Barnard, Philadelphia.—p. 477.
15 Retained Adherent Placenta. C. B. Reynolds, Philadelphia.—p. 479.
16 Surgeon's Responsibility to Economics of Hospital. E. Marvel, Atlantic City, N. J.—p. 482.

American Journal of Orthopedic Surgery, Boston

September, XV, No. 9

17 *To What Extent Have Sun's Rays an Influence in Treatment of Bone and Joint Tuberculosis? A. H. Freiberg, Cincinnati.—p. 625.
18 *Association of Arterial Hypertension and Chronic Arthritis. P. P. Swett, Hartford, Conn.—p. 635.
19 Suspension with Extension in Treatment of Fractures of Limbs. J. Blake, France.—p. 644.
20 *Apophysitis of Os Calcis. A. D. Kurtz, Philadelphia.—p. 659.
21 Osteochondritis Deformans Juvenilis; Report of Case. A. B. Galvin, Springfield.—p. 664.

17. **Sun Rays Treatment of Bone Tuberculosis.**—From an experience with three cases Freiberg concludes that exposure to the sun's rays resulted in speedy improvement, which can fairly be attributed to this agency. The retrogression which ensued on having to abandon the systematic use of the sunlight seems to emphasize this fact, and makes it desirable to continue this during the winter in his own environment. The results obtained by Freiberg seem to indicate the value of this method, even in the vicinity of large cities and at low altitudes, where, according to Rollier, the potency of the ultraviolet rays is greatly diminished by the stratum of moist and unclean air through which they must pass. It is by no means certain that the ultraviolet rays are the essentially active or the only active part of sunlight, in a therapeutic sense. In Freiberg's experience the use of the quartz ultraviolet lamp, the so-called Alpine sun lamp, has failed to show that it may be considered even a fair substitute for sunlight. Its light, on the other hand, is quite rich in ultraviolet rays. It seems worth while to strive to construct a form of shelter for patients which will protect them from unendurable cold and especially humid winds, thus making possible the continuance of treatment during bright days of the whole winter season. It seems necessary to expose the whole body surface in order to obtain the best results. Such shelters should, therefore, have as covers some material permitting the easy passage of the ultraviolet rays. An investigation in this direction is under way, but has not yet yielded any result of value.

18. **Arterial Hypertension and Chronic Arthritis.**—Seventy cases of these combined lesions have been studied sufficiently by Swett to warrant the assertion of a definite diagnosis. The average blood pressure readings of the seventy cases was 182. In thirty-seven, or 52.6 per cent., Heberden's nodes were present. The author is convinced that arterial hypertension and chronic hypertrophic arthritis occur simultaneously in a large number of instances. The effect of treatment directed against the hypertension by means of general régime, or by specific medication, is to improve or arrest the progress of both conditions in the vast majority of the cases.

20. **Apophysitis of Os Calcis.**—Three cases are cited by Kurtz. The condition is one that is caused by an overstrain of the epiphyseal junction some time before complete ossification occurs. The prognosis is good for ultimate recovery, provided the proper treatment is carried out. The indications are rest, until pain has subsided, and then some means should be used to relieve the strain from the heel while it is functioning. This may be met by the use of the rubber pad in the heel of the shoe.

Annals of Surgery, Philadelphia

September, LXVI, No. 3

22 Conservatism in Surgery. S. J. Mixter, Boston.—p. 257.
23 *Carrel Method of Treating Wounds. C. L. Gibson, New York. —p. 262.
24 Shock, with Particular Reference to Condition as Seen in War Surgery. E. W. Archibald, Montreal, and W. S. McLean.—p. 280.
25 Injection of Gasserian Ganglion for Neuralgia of Fifth Cranial Nerve; Report of Cases. G. T. Vaughan, Washington.—p. 287.
26 *Empyema of Thorax. H. Lilienthal, New York.—p. 290.
27 Dilatation of Heart with Acute Myocarditis Following Abdominal Operations; Report of Cases. E. A. Vander Veer, Albany, N. Y.—p. 295.
28 Epigastric Hernia without Palpable Swelling. A. V. Moschcowitz, New York.—p. 300.
29 Paraffin Hernia; Report of Cases. A. F. Jonas, Omaha.—p. 308.
30 Case of Hypernephroma in Folds of Falciform Ligament of Liver. F. N. G. Starr, Toronto.—p. 318.
31 *Indications for Cholecystectomy. M. F. Porter, Fort Wayne, Ind. —p. 321.

32 Acute Suppurative Cellulitis of Stomach; Report of Three Cases. E. Rixford, San Francisco.—p. 325.
33 A Suture Method of Gastro-Enterostomy. F. T. Stewart, Philadelphia.—p. 334.
34 Simple Method of Resecting Transverse Colon. J. E. Summers, Omaha.—p. 337.
35 *Cases of Carcinoma of Splenic Flexure of Colon. J. A. Hartwell, New York.—p. 339.
36 *Infections in Prostate Cases. E. S. Judd, Rochester, Minn.—p. 362.
37 Selection of Cases for Prostatectomy. J. B. Deaver, Philadelphia.
38 Artificial Impaction of Hip; Report of Cases. F. J. Cotton, Boston.—p. 380.

23. Carrel Method of Treating Wounds.—Gibson is of the opinion that, while the Carrel method of treating wounds has not worked any miracles, he has been able to control suppuration more promptly than by any other method, and certainly the results of the bacterial examinations as recorded in his charts show in practically all instances an immediate and constant diminution of the bacteria.

26. Empyema of Thorax.—The 100 patients whose cases Lilienthal tabulates represent thirty-eight minor thoracotomies with 18.4 per cent. mortality; forty-four major thoracotomies, many of them preceded by minor thoracotomy, death rate 27.2 per cent. Resection of ribs with their periosteum and gauze packing in encapsulated empyema treated as if it were an abscess, seven cases with no deaths. Resection and drainage by the old method seven cases with one death, or 16.6 per cent. In all cases there has not been a single thoracoplastic collapse operation. There have been a number of revisions, secondary and even tertiary, but eventually all the patients went home with symmetrical chests and fully expanded lungs.

31. Indications for Cholecystectomy.—Porter says it is neither necessary nor advisable to remove the gallbladder except when it is diseased or injured beyond the probability or possibility of restitution, and that this power of restitution may be presumed to be lost only when one or the other of the following conditions obtains: Hydrops with obliteration of the cystic duct; calcareous degeneration or fibrous degeneration with contraction; chronic empyema; the cholesterin or strawberry gallbladder; carcinoma; extensive laceration or perforation; gangrene other than localized gangrene, such as is sometimes caused by pressure of a stone.

35. Carcinoma of Splenic Flexure of Colon.—The splenic flexure is the third most common site for the growth of colonic cancer. This growth tends to the production of obstruction with indeterminate premonitory symptoms. This complication occurs acutely in nearly three fourths of the cases coming to operation. A recognition of the foregoing facts, and a more careful detailed study, with a possible exploratory operation, should lead to an early diagnosis in a majority of the cases, and thus forestall acute complications. The probable operative mortality of all cases up to the present time is over 60 per cent., and the per centage of prolonged cures is exceedingly low, 10 to 25 per cent. These appalling results are largey due to the delayed diagnosis, and an improper mode of attack. The latter should follow the principle of the two or more stage operation with provision for external colonic drainage, either as a preliminary, or at the time of resection; always the former in the presence of serious obstruction or abscess formation. The distal portion of the transverse colon, the flexure and the entire descending colon must be resected in order to obtain the requisite conditions for a secure anastomosis with an ultimate patency of the colonic lumen.

36. Infections in Prostate Cases.—In prostatic cases, a definite reaction occurs during the preoperative treatment. In some cases this reaction may be due to infection in the kidney. Several days after the beginning of treatment or after the operation has been performed, in a very large majority of cases, the urine shows a considerable number of colon bacilli. Judd does not believe that this can be due to contamination in every instance, although he is unable to say whether it comes from the kidney, the bladder, or the prostate itself. He suggests that the infection may be walled off in the kidney and therefore no organisms will show in the urine. Simultaneously with any form of treatment, the infection becomes active and the urine immediately shows bacteria. Colon bacillus vaccine may modify the infection, though it does not decrease the number of colon bacilli in the urine.

Archives of Ophthalmology, New Rochelle, N. Y.

September, XLVI, No. 5

39 Binocular Metamorphopsia Produced by Optical Means. J. A. Lippincott, Monte Carlo.—p. 397.
40 Case of Primary Sarcoma of Iris. G. H. Bell, New York.—p. 427.
41 Trypanosome Keratitis; Experimental Study. A. C. Woods and G. E. de Schweinitz, Philadelphia.—p. 431.
42 Tonsil as Source of Infection in Iritis and Focal Choroiditis; Case Reports. J. Dunn, Richmond, Va.—p. 446.
43 Glaucoma as Result of Herpes Zoster Frontalis; Report of Cases. J. E. Weeks, New York.—p. 460.
44 Treatment of Detachment of Retina; Müller's Resection of Sclera. E. Török, New York.—p. 466.

Boston Medical and Surgical Journal

September 6, CLXXVII, No. 10

45 Newer Methods of Diagnostic Technic. F. T. Lord, Boston.—p. 299.
46 Review of Literature of Last Nine Years on Nephritis of Infancy and Childhood. L. W. Hill, Boston.—p. 313.
47 Diagnosis of Focal Sepsis. J. M. Anders, Philadelphia.—p. 319.
48 *Bruck's Serochemical Test for Syphilis; Report of Four Hundred Cases Compared with Wassermann Reaction. C. E. Smith and H. C. Solomon, Boston.—p. 321.
49 *Paresis or Dementia Praecox? H. I. Gosline, Trenton, N. J.—p. 324.
50 Shock at the Front. W. T. Porter, Boston.—p. 326.

48. Bruck's Serochemical Test for Syphilis.—The results of the Bruck serochemical test in 405 cases are presented by Smith and Solomon. In 101 of these cases there were definite clinical manifestations of syphilis, in which the Wassermann and Bruck tests agreed positively in seventy-four, or 75 per cent. The two tests agreed negatively in twelve instances, and were at variance in 15. In the group which showed syphilis of the nervous system there were sixty-four cases of clinically certain general paresis, of which the Wassermann and Bruck tests agreed in fifty-four instances, or practically 85 per cent. In other forms of central nervous system involvement the agreement was 100 per cent. in the fifteen cases tested. In the cases with no apparent involvement of the nervous system the agreement was somewhat less, being 76 per cent. This may be in keeping with the fact that the Wassermann test was not so strongly positive in these cases. The advantages of the test are: (1) the short time required to perform the test; (2) the limited amount of apparatus necessary, and (3) the simplicity of the technic. The disadvantages of the test seem, for the most part, to be bound up in the personal variations that are apt to occur.

49. Paresis or Dementia Praecox?—It seems proper to Gosline to call those cases paresis which show the mental picture and the physical signs of paresis, whether they have the positive signs of syphilitic infection or not, and to call those cases dementia praecox which have the mental and objective signs of dementia praecox, regardless of whether they have a syphilitic infection or not. Only in this way, says the author, can the problem be solved as to why certain paretics recover with more dementia than others, why some are less amenable to treatment than others, and, finally, why some have negative findings for syphilis.

Journal of Experimental Medicine, Baltimore

September, XXVI, No. 3

51 *Human Pulmonary Distomiasis Caused by Paragonimus Westermanni. K. Nakagawa.—p. 297.
52 *Distribution in Human Body of Spirochaeta Icterohemorrhagiae. R. Kaneko and K. Okuda, Japan.—p. 325.
53 *Rat as Carrier of Spirochaeta Icterohemorrhagiae, Causative Agent of Weil's Disease (Spirochaetosis Icterohemorrhagica). Y. Ido, R. Hoki, H. Ito and H. Wani, Japan.—p. 341.
54 Clinical Aspects of Spirochaetosis Icterohemorrhagica or Weil's Disease. R. Inada, Japan.—p. 355.
55 Etiology and Pathology of Rat Bite Fever. R. Kaneko and K. Okuda, Japan.—p. 363.
56 Circulating Immunity Principles in Rat Bite Fever. Y. Ido, H. Ito, H. Wani and K. Okuda, Japan.—p. 377.
57 *Pulmonary Embolism; Experimental Study. F. C. Mann, Rochester, Minn.—p. 387.
58 Viscous Metamorphosis of Blood Platelets. J. H. Wright and G. R. Minot, Boston.—p. 395.

59 *Studies on Bacterial Anaphylaxis and Infection. H. Zinsser and J. T. Parker, New York.—p. 411.
60 Increased Virulence of Hog Cholera Bacillus Produced by Passage Through Rabbits. C. Ten Broeck, Princeton, N. J. —p. 437.
61 Significance of Agglutinins in Immunity of Rabbit to Hog Cholera Bacillus. C. Ten Broeck, Princeton, N. J.—p. 441.

51. **Pulmonary Distomiasis.**—Nakagawa says that the chief causes of pulmonary distomiasis are the eating of raw or insufficiently cooked crabs infected with the cercariae of *Paragonimus westermanni,* and the drinking of river water containing them.

52. **Spirochaeta Icterohemorrhagiae in Body.**—The material examined by Kaneko and Okuda came from necropsies performed on forty-three patients who died at various stages of illness. The distribution of the spirochetes in the various organs of the human body differs according to the degree of development of the immune bodies. The spirochetes disappear first from the liver and suprarenals, but remain for some time in the muscle, prostate, thymus, appendix, testicles, epididymis, etc. In the kidneys they can be found for a long time. Their mode of disappearance would seem to indicate distribution varying with the different stages of the disease. And not alone the general distribution, but the local position of the spirochetes changes with the different stages. In the early stage, they are located mainly extracellularly, in the interstices; in the later stage, owing to the development of the immune bodies, in the blood, in the main intracellularly, and within the kidney tubules.

53. **Carrier of Spirochaeta Icterohemorrhagiae.**—In thirty-four out of ninety-two cases, or 37 per cent., examined by the authors, spirochetes identical with *Spirochaeta icterohemorrhagiae* were present in the kidneys or in the urine, as demonstrated directly by dark-field illumination and indirectly by inoculation. The organisms cannot be demonstrated in the blood and the liver, but in the urine of rats harboring *Spirochaeta icterohemorrhagiae* in the kidneys, they are present without exception. Urine containing spirochetes, even in small amounts (0.1 to 0.2 c.c.), infects guinea-pigs when injected intraperitoneally. In Japan, the rat is undoubtedly a carrier of the causative agent of *Spirochaetosis icterohemorrhagica. Mus decumanus* was found to be a carrier in 40.2 per cent. of 149 cases. *Mus alexandrinus* in 0.8 per cent. of twenty-four cases. On the basis of these findings, the authors conclude that the extermination of rats and field mice is a highly important prophylactic measure against Weil's disease.

57. **Pulmonary Embolism.**—The mechanism by which death is produced by an embolus which blocks only a small part of the pulmonary blood circulation is unknown. Mann's investigation was made for the purpose of determining this unknown factor, a purpose he has not been able to accomplish, as it has been possible to produce death experimentally only by a more or less complete blocking of the pulmonary circulation. Emboli made of paraffin and the animal's own blood were sent into the venous circulation of dogs. Death did not occur until the pulmonary circulation was practically occluded. The results were the same whether the blood pressure of the animal was normal or depressed by ether or disease and whether the procedure was carried out under ether or local anesthesia.

59. **Bacterial Anaphylaxis and Infection.**—An analysis of bacterial anaphylaxis and its relation to the occurrences in the animal body during an infectious disease is being made by Zinsser and Parker. They show that the sensitization of the tissues of guinea-pigs, as indicated by the isolated uterus, required three to five days when passive sensitization was employed, and that in these relations conditions with bacterial sensitization were entirely analogous to those revealed for serum anaphylaxis by Dale and Weil especially. It has become apparent that the sensitized uterus reacted not at all with whole bacteria or whole red cells, or, in other words, that before reaction with sensitized organs could occur an extraction or solution of the bacterial cell must take place. The mechanism of injury in the sensitized animal or in the human being so far along in typhoid that antibodies have begun to develop is in part one in which antigen, derived from the bacilli and brought into solution, or rather suspension, in the blood stream, reacts with antibodies which are from the beginning, or have subsequently become, integral parts of the cell protoplasm, the entire process taking place within the cell. The symptoms which appear as the incubation time ends are largely those due to cellular sensitization which probaby begins before any considerable amount of circulatory antibodies is present. Cure would consist of a gradual checking of growth and final destruction of the bacteria, and the consequent cessation of antigen liberation, but delicate hypersusceptibility would probably persist for some time after cure and immunity have been established. Just what the relation between tissue hypersusceptibility and immunity is remains a problem for further study.

Journal of Urology, Baltimore

August, I, No. 4

62 *Severe Renal Insufficiency Associated with Attacks of Urticaria in Hypersensitive Individuals. W. T. Longcope and F. M. Rackemann, New York.—p. 351.
63 *Lymphoid and Cystic Bodies in Urethra as Evidence of Tuberculosis. P. S. Pelouze, Philadelphia.—p. 367.
64 *Median Prostatic Bars as Found at Necropsy. A. Randall, Philadelphia.—p. 383.
65 Primary Nonpapillary Carcinoma of Renal Pelvis; Report of Case and Review of Literature. H. L. Kretschmer, Chicago. —p. 405.
66 Diverticulum of Bladder; Case Reports. J. A. Gardner, Buffalo. —p. 439.

62. **Renal Insufficiency with Urticaria.**—A study of the renal function in six cases of urticaria, four of which were hypersensitive to one or more foreign proteins, showed more or less profound disturbances of the functional activity of the kidney in three instances. In one case the disturbance was limited to a marked albuminuria and cylindruria. In two cases the attacks of urticaria and erythema were accompanied by albuminuria, cylindruria, increase in blood urea, profound depression of the index of urea excretion, decrease in the output of phenolsulphonephthalein and retention of chlorids and water. These observations show that during severe attacks of urticaria and erythema multiforme in the spontaneously sensitive, a much more profound intoxication of the body tissues takes place than can be demonstrated in the usual case of serum disease. Longcope and Rackemann suggest that it is probable that the intoxication causes a general distrubance in protein metabolism as well as an injury to the kidney.

63. **Lymphoid and Cystic Bodies in Urethra.**—In approximately 3,500 cystoscopies within the last three and one-half years, Pelouze has seen fifty-one cases. Of this number, he has studied forty-two cases, of which thirty-seven show reasonably certain evidences of tuberculosis. Five are still being studied for further confirmation of a coexisting tuberculous focus. Nine of these cases were observed only once, and did not return for further study. The most striking points in the entire group of cases are the following: Many were, or had been, in direct daily contact with cases of tuberculosis. Thirty-two had had a more or less recent specific urethritis. Almost all of this latter number were being treated for "chronic urethritis." The urine was usually clear but contained shreds. An associated follicular prostatitis was the rule. Frequency of urination was present in twenty-one cases. Burning pain in the fossa navicularis was present in thirty-five cases, usually only at urination. It was the most common symptom calling attention to the lesions. Burning pain at the vesical neck or in the perineum, either constant or intermittent, was present in nineteen cases.

64. **Median Bars as Found at Necropsy.**—Three hundred necropsy specimens of adult male prostates were examined by Randall. They have shown median obstruction to the vesical outlet in 18 per cent. of fifty-four cases. These have been shown to be either (1) fibrous, 10 per cent., or (3) glandular, 8 per cent. The fibrous type of bar has been subdivided into two varieties according to whether the process has encroached on, or drawn up (1) the urethral, or (2) the vesical surface in its development. They are the result of an inflammatory reaction and but a part of a generalized chronic interstitial prostatitis. The glandular type has been

subdivided into two varieties according to whether the hypertrophic process is confined to (3) the posterior prostatic commissure, inside the prostatic capsule and under the sphincter muscle, in which case a thick, broad bar is formed, or the (4) subcervical glands of Albarran, occurring just under the mucous membrane and within the sphincteric ring. Evidences of chronic inflammatory reaction has been the rule likewise in these glandular hypertrophies.

Medical Record, New York

September 8, XCII, No. 10

67 Incompetency of Ileocecal Valve vs. Lane's Kink as Cause of Ileac Stasis. J. H. Kellogg, Battle Creek, Mich.—p. 399.
68 Diagnosis and Therapy of Chronic Intestinal Toxemia. G. R. Satterlee, New York.—p. 402.
69 Diagnosis of Pulmonary Tuberculosis in Children of School Age. M. Fishberg, New York.—p. 406.
70 Milk Bacteria which Proliferate Before and Those which Survive Pasteurization: A New Method of Milk Sterilization. J. M. W. Kitchen, East Orange, N. J.—p. 409.
71 Autoserum Treatment for Chorea. R. D. Moffett, New York.—p. 414.
72 Some Disfiguring Affections of Eyelids. D. W. Montgomery, San Francisco.—p. 416.
3 Outlines of New York Concerning Alcoholic Problem. T. D. Crothers, Hartford, Conn.—p. 418.

Michigan State Medical Society Journal, Grand Rapids

July, XVI, No. 7

74 Abdominal Injuries—Symptoms, Treatment; Report of Case. L. J. Dretzka, Detroit.—p. 301.
75 Correct Interpretation of Bladder Symptoms in Female. W. T. Dodge, Big Rapids.—p. 302.
76 Contributions to Medical Literature by Profession of Detroit During Last Sixteen Years—(1900-1915 both Inclusive). W. H. Morley, Detroit.—p. 304.
77 Disturbances of Menopause and Their Relation to Blood Pressure. G. M. Johnson, Traverse City.—p. 308.
78 Relation of Physician to Compensation Act. C. S. Gorsline, Battle Creek.—p. 310.
79 Early Diagnosis of Pulmonary Tuberculosis. H. S. Hatch, Lansing.—p. 312.
80 *Case of Full Term Ectopic Gestation Retained Eighteen Years. Operation and Recovery. R. Peterson, Ann Arbor.—p. 316.
81 Case of Visceral Syphilis. U. J. Wile, Ann Arbor.—p. 317.
82 Spindle Cell Sarcoma Arising in Cavernous Lymph and Hemangioma of Musculospiral Nerve. M. M. Peet, Ann Arbor.—p. 320.
83 Case of Amelanotic Melanotic Sarcoma over Scapula Region. H. M. Malejan and V. Russell, Ann Arbor.—p. 321.

September, XVI, No. 9

84 Penetrating and Nonpenetrating Injuries of Eye; Report of Cases. S. R. Edwards, Grand Rapids.—p. 391.
85 Two Cases of Cervical Ribs Associated with Symptoms of Hyperthyroidism. H. B. Schmidt, Detroit.—p. 394.
86 Shell Shock; General Discussion. W. H. Marshall, Boyne Falls.—p. 396.
87 Head Injuries; General Discussion. F. W. Walker, Detroit.—p. 399.
88 Medieval Care of Insane in Modern Times. "County Care System." H. S. Hulbert, Ann Arbor.—p. 401.
89 Two Cases in which Symptoms Seemed to Be Dependent on Disease of Teeth. N. B. Foster, Ann Arbor.—p. 406.
90 Report of Two Cases of Retroperitoneal Hematoma Following Purse String Watkins Operation for Cystocele R. A. Bartholomew, Ann Arbor.—p. 410.
91 *Late Results in Splenectomy. Q. O. Gilbert Ann Arbor.—p. 412.
92 Malaria; Report of Case. H. S. Bartholomew, Lansing.—p. 413.

80. Full Term Ectopic Gestation Retained Eighteen Years.—A woman, aged 46, consulted Peterson for an abdominal tumor which has existed for eighteen years. Five years after marriage there was cessation of menstruation, the usual morning sickness and enlargement of the breasts. There was a gradual increase in the size of the abdomen until at the ninth month she was as large as a woman at term. She felt life at the fifth month but does not remember at what time movement ceased. She thought she was pregnant but never had any labor pains. Shortly after the cessation of menstruation for nine months, she began to flow regularly again. She remained the same size, that is, the size of a woman at term, for two years, then gradually became smaller. For the past six years her abdomen has been of about the same size. During the past year she has not been feeling well and has lost 10 or 15 pounds The tumor rose rather abruptly from the pubes, the highest point being half way between this point and the umbilicus. The growth was symmetrical, smooth, somewhat tender and distinctly fluctuating. It was fixed and apparently quite densely adherent to the parietal peritoneum. Posterior to the cervix could be felt an irregular, tender mass about the size of a small hen's egg apparently attached to the tumor which could be made out as a cystic mass by palpation through the culdesac. It was impossible to palpate the appendages. On cutting through the abdominal wall, the fluctuating sac was found densely adherent to the parietal peritoneum, omentum and portions of the intestine. During the enucleation of the sac the latter was nicked in one portion, giving exit to an oily fluid of about the consistency and color of pea soup. When the sac was cut open it was found to contain the greater portion of a fetal skeleton.

91. Results in Splenectomy.—Gilbert records the blood cell changes, one year after splenectomy in two patients. He found a tremendous bone marrow stimulation immediately after operation, as evidenced by the marked leukocytosis, the increased nuclear red forms and increase in the large mononuclear and transitional groups. One year later he found the differential count very much the same, except for the increase in the lymphocytes and the marked increase in the number of nucleated red cells. The actual number of nuclear particles has remained about the same. One would think, then, that there must be a more essential factor in the blood cell destruction than the spleen. It would seem that the spleen has a very definite relation to bone marrow cell production, and it has a most definite relation to the maturing of the red cells, especially in the destructive metabolism of the nucleus of the red cells. In these two patients who have returned after a definite remission there is now much greater evidence of hemolysis than before. The spleens were removed and both show marked evidence of bone marrow activity with the principal change in the large number of normoblasts with all stages in the formation of nuclear particles.

Modern Hospital, St. Louis

September, IX, No. 3

93 Herman Knapp Memorial Eye Hospital, New York City. A. Knapp, New York.—p. 153.
94 Clinical Laboratory of Albany Hospital. C. F. Graham, Albany, N. Y.—p. 158.
95 Government's Work in Eradication of Trachoma. J. McMullen, Lexington, Ky.—p. 163.
96 Emergency Hospital for After-Care of Infantile Paralysis. L. C. Ager, Brooklyn.—p. 166.
97 *White Operation Room. W. L. Secor, Kerrville, Texas.—p. 170.
98 New York Children's Eye Clinics. W. M. D'A. Carhart, New York.—p. 171.
99 Medicine and Metrics. H. V. Arny, New York.—p. 174.
100 James J. Gray Clinic in Atlanta, Ga. C. C. Hinton and H. F. Hentz, Atlanta, Ga.—p. 177.
101 Standardization of Hospitals; Class II and III, Semipublic Institutions. J. A. Hornsby, Chicago and others.—p. 180.

97. White Operating Room.—The illumination of a room depends on two factors, the amount of light admitted to the room and the amount of light reflected from the surfaces it strikes within the room. After a study of the coefficient of reflection of various colors, H. A. Gardner published his results in the *Journal of the Franklin Institute* for January, 1916, and showed that the coefficient of reflection of white is 88 per cent., of light green 42 per cent., medium green 14 per cent. and dark green 11 per cent. Acting on this principle Secor built an octagon operating room, the ceiling of which was carried to a point, giving the effect of eight triangular panels; four of the sides from tip of pointed ceiling to floor are of heavy ground glass, which admits an abundance of north light. The walls, furniture, etc., are all white; to obviate the effect of the glare they use beaks on their caps, and on bright days large amber-tinted spectacles are worn. The cap used is a modified Mayo cap with small beak, and, to make it cooler, the back part of the skirt is cut away. The beak is made of several thicknesses of muslin with a number of rows of machine stitching and does not in the least hinder sterilization.

Nebraska State Medical Journal, Norfolk

August, II, No. 8

102 Society's Duty to Mentally Deficient Children. D. G. Griffiths, Beatrice.—p. 381.
103 Epilepsies. B. F. Williams, Lincoln.—p. 385.
104 Manifestations of Late Hereditary Syphilis. H. B. Hamilton, Omaha.—p. 388.

105 School Hygiene. J. W. Straight, Hastings.—p. 392.
106 Advantages and Disadvantages of Country Physician. G. W. Sullivan, St. Edward.—p. 396.
107 Functional Kidney Diagnosis in Urologic Diseases. G. W. Covey, Lincoln.—p. 397.

New York Medical Journal

September 8, CVI, No. 10

108 Treatment of Paresis. B. D. Evans and F. H. Thorne, Morris Plains, N. J.—p. 437.
109 Imperfect Sight of Normal Eye. W. H. Bates, New York.—p. 440.
110 Psychotherapy and Drama. S. E. Jelliffe, New York.—p. 442.
111 Drugless Healing Cults. J. M. Taylor, Philadelphia.—p. 447.
112 Prostatic Hypertrophy with Tabes. E. M. Watson, Buffalo.—p. 448.
113 Plea for Early Diagnosis of Pulmonary Tuberculosis. S. A. Silk, Washington, D. C.—p. 449.
114 Diagnosis of Early and Late Gastric Cancer. H. Weinstein, New York.—p. 453.
115 New Group of Symptoms in Terminal Gastric Catarrh. R. Upham, Brooklyn.—p. 455.

Oklahoma State Medical Association Journal, Muskogee

September, X, No. 9

116 Surgery of Cystocele, Rectocele and Procidentia Uteri. A. L. Blesh, Oklahoma City.—p. 353.
117 Use and Abuse of Serums and Vaccines. C. W. Fisk, Kingfisher.—p. 358.
118 Focal Infections and Their Distal Consequences. E. Lamb, Clinton.—p. 362.
119 Sick Headache. C. W. Heitzman, Muskogee.—p. 367.
120 Hemorrhage from Ruptured Ovarian Cyst Simulating Ectopic Pregnancy; Report of Case. C. S. Neer, Vinita.—p. 369.
121 Acidosis of Pregnancy. W. M. Sanger, Oklahoma City.—p. 371.
122 Adynamic Ileus; Report of Two Cases. I. W. Robertson, Henryetta.—p. 373.

Pennsylvania Medical Journal, Athens

August, XX, No. 11

123 Bilateral Metastatic Panophthalmitis Following Pneumonia, with Fatal Issue. G. A. Lawrence, Philadelphia.—p. 379.
124 Ligation of Superior Pole of Thymus in Operating for Goiter. L. F. Stewart, Clearfield.—p. 751.
125 Some of More Unusual Affections Involving Deep Urethra and Bladder. E. R. Kirby, Philadelphia.—p. 755.
126 Abnormal Coagulation Time of Blood and Methods of Overcoming It. G. M. Dorrance, Philadelphia.—p. 761.
127 Early Differential Diagnosis Between Dementia Praecox and Manic Depressive Insanity. F. X. Dercum, Philadelphia.—p. 765.
128 Shall County Society Organ Be Continued? A. B. Hirsh, Philadelphia.—p. 767.
129 Secretary as Factor in Society. L. B. Kline, Catawissa.—p. 770.
130 Focal Infection. J. Daland, Philadelphia.—p. 771.
131 Alcohol as Revealed by Modern Scientific Research (Ethyl Alcohol). S. C. Smith, Philadelphia.
132 Commitment of Insane in State of Pennsylvania. T. Diller, Pittsburgh.—p. 778.
133 Prognosis, Sequelae and Complications of Infantile Paralysis. A. J. M. Treacy, Philadelphia.—p. 782.

Southern Medical Journal, Birmingham, Ala.

September, X, No. 9

134 Modern Treatment of Acute Infectious Diarrhea. A. J. Waring, Savannah, Ga.—p. 711.
135 Evils of Drug Addiction and of Traffic. W. D. Partlow, Tuscaloosa.—p. 713.
136 *Case of Huge Dilatation of Esophagus. J. Friedenwald, A. Cotton and A. C. Harrison, Baltimore.—p. 717.
137 Public Health Administration and What Has Been Accomplished in Glynn County, Georgia. T. F. Abercrombie, Brunswick, Ga.—p. 722.
138 Intensive Community Sanitation in Virginia; Methods Adopted and Some Results. E. L. Flanagan, Richmond, Va.—p. 724.
139 Our Professional Allies, Public Health Nurses. C. C. Aven, Atlanta, Ga.—p. 730.
140 Gunshot Injuries of Spinal Cord; Report of Two Cases. C. W. Roberts, Atlanta, Ga.—p. 734.
141 *Cholecystitis with and without Gallstones, with Classification of Symptoms. G. A. Hendon, Louisville, Ky.—p. 737.
142 Streptococcus Septicemia with Metastatic Infection in One Eye. C. W. Vest, Baltimore.—p. 740.
143 Passage of Wounded Man from Front Line Trenches to Base. T. H. Goodwin, Washington, D. C.—p. 744.
144 Medical Preparedness in Great Drive for Democracy. J. C. Bloodgood, Baltimore.—p. 746.
145 What European War Has Taught Us in Transportation and Handling of Injured. J. H. Ford, Leon Springs, Texas.—p. 752.
146 Why Cyclopegic or Mydriatic as Routine? J. M. Crawford, Asheville, N. C.—p. 758.
147 Eye Strain and Its Relation to Reflex Nervous Troubles. L. M. Scott, Jellico, Tenn.—p. 760.

136. Huge Dilatation of Esophagus.—The esophageal dilatation in this case was fusiform in shape, the smaller portion of which extended as high up in the neck as the cricoid cartilage. The esophageal sac held as much as 1,750 c.c. of water. The stomach was about normal in size, with a capacity of 750 c.c. The other abdominal organs were normal.

141. Cholecystitis.—One of Hendon's patients was a male, 26 years of age. While at work he was suddenly seized with pain in the region of the gallbladder and went home and sent for his physician. Two days later he was admitted to a hospital. His pain was excruciating; pulse, 120; temperature, 101.6. A tumor was perceptible in the gallbladder region. Incision showed the gallbladder very black and distended; when opened it was found filled with blood clot. There were no stones present. He made a smooth convalescence and died one year later from nephritis.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

July, XXV, No. 7

148 Focal Infections. A. B. Leeds, Chickasha.—p. 157.
149 Surgical Acidosis. W. E. Dicken, Oklahoma City.—p. 163.
150 Electrotherapy. J. Y. Simpson, Kansas City, Mo.—p. 173.
151 Heat in Cancer of Uterus. F. A. Hoge, Fort Smith, Ark.—p. 176.
152 Focal Infections. W. H. Livermore, Chickasha.—p. 179.

Southwestern Medicine, El Paso, Texas

August, I, No. 8

153 Administration of Base Hospital. C. R. Snyder.—p. 9.
154 Ambulance Company. W. H. Allen.—p. 13.
155 Clinical Features of Labyrinthitis. E. R. Carpenter, El Paso.—p. 19.
156 Pathology of Acute Acidosis. W. W. Watkins, Phoenix, Ariz.—p. 23.
157 *Conservation of Kidney Tissue by Surgeon. W. Smith, Tucson, Ariz.*—p. 32.

Surgery, Gynecology and Obstetrics, Chicago

September, XXV, No. 3

158 *Symposium on Relation of Glands of Internal Secretion to Gynecology and Obstetrics. R. T. Frank, New York.—p. 225.
159 *Relation of Pituitary Gland to Female Generative Organs. E. Goetsch, Baltimore.—p. 229.
160 *Physiologic and Pathologic Importance of Parathyroid Gland from Experimental Aspect. C. Voegtlin, Washington.—p. 244.
161 *Pineal Gland; Influence of Pineal Gland on Growth and Differentiation with Particular Reference to Its Influence on Prenatal Development. C. P. McCord, Detroit.—p. 250.
162 *Relation of Parathyroid System to Female Genital Apparatus. E. H. Pool, New York.—p. 260.
163 *Thyroid Gland in Relation to Gynecology and Obstetrics. D. Marine, Cleveland.—p. 272.
164 Thymus Gland and Its Possible Relation to Female Genital Tract. A. M. Pappenheimer, New York.—p. 276.
165 *Endocrine Function of Pancreas and Its Relation to Sex Life of Women. A. J. Carlson, Chicago.—p. 283.
166 *Experimental and Clinical Evidence as to Influence Exerted by Suprarenal Bodies on Genital System. S. Vincent, Winnipeg, Manitoba.—p. 294.
167 *Relation of Ovary to Uterus and Mammary Gland from Experimental Aspect. L. Loeb, St. Louis.—p. 300.
168 *Transplantation and Retention of Ovarian Tissue after Hysterectomy. W. P. Graves, Boston.—p. 315.
169 Preparation and Standardization of Ovarian and Placental Extracts. W. H. Morley, Detroit.—p. 324.
170 *Placenta Regarded as Gland of Internal Secretion. R. T. Frank, New York.—p. 329.
171 *Relation of Sex Glands to Metabolism. J. R. Murlin, and H. Bailey, New York.—p. 332.
172 Study of Ovarian Transplantation and Ovarian Secretion. F. H. Martin, Chicago.—p. 336.
173 Autonomic System as Integrator with Special Reference to Urogenital Organs. H. C. Jackson, New York.—p. 346.

158-163. Abstracted in The Journal, July 21, 1917, pp. 235, 236 and 237.

165-168. Abstracted in The Journal, July 21, 1917, pp. 236 and 237.

170 and 171. Abstracted in The Journal, July 21, 1917, p. 237.

Vermont Medicine, Rutland

August, II, No. 8

174 *Neutralization of Virus of Poliomyelitis by Nasal Washings. H. L. Amoss and E. Taylor, Burlington.—p. 189.

174. **Neutralization of Virus of Poliomyelitis by Nasal Washings.**—Tests were made by Amoss and Taylor to determine the effect of concentration of washings on the activity of the virus. Amounts of virus which would certainly produce the infection if injected directly were added to a filtered washing fluid obtained from persons not having been exposed to the infection. The mixtures were separately reduced to small volume in vacuo at low temperatures and injected into monkeys. The results obtained were variable, for reasons which at first were not obvious, but the tests nevertheless showed that the filtered virus in certain amounts may withstand concentration in washing fluids without losing entirely its infective power. The nasopharynx was rinsed with double distilled water and the washings were fractionally sterilized by heating to 60 C. for three successive days. Each person's specimen was handled separately. The virus employed was obtained by filtering a 5 per cent. suspension of glycerolated poliomyelitic monkey spinal cord. To teach 30 c.c. of the washings 7.5 c.c. of the filtered virus were added. The mixture was then incubated at 37 C. for twenty-four hours. Control mixtures of virus and distilled water were subjected to the same incubation. Each cubic centimeter of the mixtures then contained 0.2 c.c. of the filtrate, or at least two minimum lethal doses of the virus. The results of this experiment suggest that the nasal washings of a person suffering from acute poliomyelitis may exercise no restraining influence on an active virus, while those from healthy persons, under identical conditions of preparation, inhibit its activity. The secretions of apparently normal persons vary in the so-called neutralizing power. In each series of experiments the potency of the virus was estabished by control experiments. The secretions of three persons out of six examined varied in their power to neutralize 0.2 c.c. of the virus filtrate at different times under nearly identical conditions, yet the only known clinical differences consisted in the presence of a rhinitis which appears to remove the inactivating power of the secretions.

The neutralizing substance is apparently rendered inactive by heating to 70 C. Apparently inflammatory conditions of the upper air passages tend to remove or diminish the power of neutralization. But irregularities have been noted, even in the absence of these conditions. The neutralizing substance is water soluble and appears not to be inorganic; it appears to be more or less thermolabile, and its action does not depend on the presence of mucin as such. It is suggested that the production of healthy carriers through contamination with the virus of poliomyelitis may be determined by the presence or absence of this inactivating or neutralizing property in the secretions. Whether this effect operates to prevent actual invasion of the virus and production of infection can only be conjectured. The authors suggest that probably the property is merely accessory and not the essential element on which defense against infection rests. It is more probable that other factors exist which help to determine the issue of the delicate adustment between contamination and infection.

West Virginia Medical Journal, Huntington

July, XIII, No. 1

175 Local Anesthesia in Surgery of Colon and Rectum. W. M. Beach, *Pittsburgh.—p. 1.*

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

August 25, II, No. 2956

1 *Trench Nephritis, Its Later Stages and Treatment. J. M. Clarke. —p. 239.
2 *Reamputation. W. A. Chapple.—p. 242.
3 *Method of Flapless Amputation, with Subcutaneous Division of Bone at Higher Level. W. S. Handley.—p. 244.
4 Thomas Splint for Fractures of Femur. W. Rankin.—p. 248.
5 Dakin's "Dichloramin-T" in Treatment of Wounds of War. J. E. Sweet.—p. 249.
6 Expeditious Method for Study of Enteric Stools. F. B. Bowman. —p. 250.

1. **Trench Nephritis.**—This paper deals with cases of nephritis in a base hospital, the initial stage being over. The seventy-four cases are placed in four groups: 1. Thirteen cases in which there was either a distinct history of a previous attack of nephritis or definite signs of an affection of the kidneys of some standing. 2. Ten cases in which the nephritis was found to have cleared up on admission, though the symptoms of an attack before admission were quite definite. 3. Nineteen cases which completely recovered in the hospital and were discharged cured. 4. Thirty-two cases which left this hospital not cured, though the majority were greatly improved. The onset in nearly all appears to have been sudden, and edema of the face and limbs, with pains in the back, and dyspnea the chief symptoms; the latter was only partly accounted for by the frequency of bronchitis. Edema at onset was present in fifty-seven out of seventy-four patients. Hematuria, generally slight, occurred in many. The chief symptoms of the disease while in the hospital were edema, most often of the face and limbs, much less often general anasarca; as a general rule, edema showed a disposition to clear up fairly quickly, but in bad cases was persistent, sometimes for many weeks, and in a few attended with ascites and pleural effusion; dyspnea, often but not always associated with some bronchial or pulmonary complication; pains in limbs and back, headache, less frequently vomiting, only occasionally diarrhea, a feeling of great prostration and sometimes mild cyanosis; anemia was only present in the more severe cases and uremic fits in one only.

The average duration before admission to this hospital was two to three weeks, and that of the whole illness until the cases were sufficiently recovered for discharge was, in Group 1, 9.6 weeks; in Group 2 (convalescent on admission), three weeks; in Group 3 (recovered in the hospital), 6.8 weeks, and in Group 4, 8.1 weeks. Of sixty-eight patients, three died, eight were discharged slightly improved as permanently unfit, eleven much improved but the urine contained casts and more than a trace of albumin, six fairly well and able to do light work, and thirty-two recovered completely; of eight patients Clarke has not sufficient information.

The treatment consisted of rest in bed; a fixed diet of 2½ pints of milk, 6 ounces of bread, 1 ounce of rice, ½ ounce of butter, 4 ounces of potatoes, 4 ounces of greens, 1 ounce of jam and fruit occasionally. As improvement took place the bread was increased to 8 ounces and the yolk of one or two eggs was added. Later on, 4 ounces of cooked fish or chicken were added and sometimes more bread and butter. Salt was not used as a condiment, nor added by the cook, except in cooking green vegetables. The amount of water was not restricted when once the kidney began to secrete freely. Many of the patients had only a simple diaphoretic mixture with a saline or other purgative required. Hot air baths were used when free diaphoresis was necessary. Nitroglycerin was given when the blood pressure was raised. Iron was given in the later stages if there was anemia. In many cases with deficient urinary excretion on admission, sodium carbonate was used with very satisfactory results in establishing a free flow of urine.

2. **Reamputation.**—Assuming that a reamputation of a limb has to be done, Chapple suggests early reamputation and the saving of weeks of painful and tedious healing; the control of bony proliferation, the avoidance of spurs, and the protection of the bone end from infection, by careful technic in the treatment of the periosteum; the covering of the end of the bone with muscle fascia and skin in such a way as to (*a*) approach the normal heel as a model and (*b*) provide for the most distant muscle attachments possible; the use of button sutures in every case of primary and secondary amputation in cases in which the flaps are large and the skin is stitched, in order to (*a*) keep severed muscles and tendons as nearly as possible in apposition, (*b*) give immunity from the results of suppuration if it occur, (*c*) prevent hemorrhage between the flaps, (*d*) give the minimum area of flaps and the maximum length of stump in cases in which shortness is a locomotive disability.

3. **Method of Flapless Amputation.**—Handley suggests the trial of a method which, while retaining all the important

advantages of the guillotine method, will obviate the necessity of a secondary operation. It is also, he says, the best way of doing the secondary amputation in cases previously submitted to the Kelly method. In such cases it is necessary (*a*) to remove such a length of bone that an adequate covering of soft tissue is provided for what remains; (*b*) to excise the calcified granulations, which do not afford a suitable bed for the spreading epithelium. If calcified granulated tissues are allowed to remain, it is certain that ultimately the skin will be adherent to the end of the bone; (*c*) to do what is necessary with minimum exposure of fresh raw surfaces, since all these cases are necessarily accompanied by sepsis. Handley makes two punctures at the end of the bone at the outer side of the limb, separated by about one third of its circumference and situated 4 inches above the end of the stump. Through one of them a curved pair of forceps is introduced closed, and is insinuated round the bone until it is able to seize the end of the Gigli saw introduced through the outer puncture. The pair of forceps is then withdrawn, bringing with it the saw. The bone is now divided, care being taken not to rasp the soft tissues. The punctures are made on the side of the limb remote from the main artery so as to avoid all risk of injury to the large vessels by the action of the saw. The end of the bone is now seized by lion forceps and with the aid of a periosteal elevator is easily separated from the soft tissues and removed. Excise the layer of calcified granulated tissue and insert one or two sutures, making ample provision for drainage. In patients exhausted by long continued suppuration it may even be advisable to perform the operation in two stages. The first stage is the subcutaneous division of the bone at the selected level. This operation should run an aseptic course. In a few days the ends of the marrow canal will be sealed by a layer of granulation tissue, and the isolated distal end of the bone can be removed with a minimum risk of osteomyelitis in the proximal end. The method can be used for primary amputations, and Handley has successfully employed it on several occasions.

Journal of Tropical Medicine and Hygiene, London

August 15, XX, No. 16

7 Tropical Diseases Met with in Balkanic and Adriatic Zones. A. Castellani.—p. 181.

Lancet, London

August 25, II, No. 4904

8 Students' Number.—p. 267.

Archives des Maladies du Cœur, etc., Paris

August, X, No. 8, pp. 353-400

9 *Subacute Endocarditis plus Pulmonary Endarteritis with Chronic Heart Disease. R. Lutembacher.—p. 353.

9. **Subacute Endocarditis with Chronic Heart Disease.**—Lutembacher gives illustrated descriptions of the necropsy findings in thirteen cases of chronic heart disease. They confirm the assumption that patients with chronic cardiovascular disease do not die from the progress of the disease but succumb to superposed infectious processes, independent of asystolia. The subacute septicemia entails anemia and thrombosis. His patients were all young, without much dilatation of the heart, and compensation had been perfect or had only occasionally briefly lapsed. Suddenly, after some casual infectious sore throat or childbirth they began to exhibit symptoms of infectious disease, slight jaundice and symptoms of embolism in spleen, kidneys or skin. Although the germs are not very virulent and the infectious process keeps subacute, yet its tenacity and fatal outcome render it actually malignant. There is another form of this secondary endocarditis in which the infectious process soon dies out. The outlook is grave only in case embolism develops; otherwise, after infarction in spleen or kidney, all subsides. Lutembacher reiterates that the embolism accident is only the expression of an infectious process; in several of the cases here described the emboli were swarming with microbes, generally streptococci. The clots were found in the right or left cavities of the heart or in the pulmonary artery. One in the left auricle was 5 cm. in diameter and 3 cm. thick. Some were pedunculated. The clinical picture from the clot in the left cavities may prove misleading if the chronic heart affection is not known. The general infection, anemia and rapid pulse suggest paratyphoid or tuberculosis; the renal infarcts may be diagnosed as a tuberculous process in the kidney. Death occurs in from three to nine months unless the infection dies out and after infarction of spleen or kidney, or hemiplegia, the patient throws it off.

Archives de Médecine des Enfants, Paris

July, XX, No. 7, pp. 337-392

10 *Twelve New Cases of Infantile Scurvy. J. Comby.—p. 337.
11 Tubercles in the Pons. A. d'Espine and V. Demole.—p. 355.
12 Case of Subcutaneous Emphysema in Diphtheria. Le Soudier.—p. 360.
13 *Congenital Obliteration of the Bile Ducts. J. Comby.—p. 363.

10. **Infantile Scorbutus.**—This later series brings to forty-one Comby's record of scurvy in infants at Paris during eighteen years. None of the children had been getting breast milk or fresh milk or even simply boiled milk; all had been fed with sterilized flour foods. Signs of rachitis were present in nearly every case. The artificial feeding is responsible for both, he declares, saying that if the milk is sterilized—dead milk—there may be both scurvy and rachitis; if the food is fresh—living milk—the child is exposed to danger of rachitis alone. The diagnosis of scurvy is easy for a physician who has once seen a case, but very difficult otherwise. Cases in this series had been mistakenly diagnosed acute articular rheumatism, infectious polyarthritis, polyneuritis, acute myelitis, infantile paralysis, meningitis, typhoid, osteomyelitis, fracture in a child with rickets, syphilitic osteoperiostitis, osteosarcoma, coxalgia or Pott's disease. All the children easily and rapidly threw off their scorbutus, no matter how old or how severe the course. All that is necessary is to think of the possibility of scorbutus and stop all feeding from cans, returning to fresh milk, raw or merely boiled, giving two or three teaspoonfuls a day of orange or grape juice or lemonade. Children over 18 months old can be given soft mashed potato. Meat juice is not necessary. Every child taking sterilized milk is liable to develop scurvy.

13. **Congenital Obliteration of Bile Ducts.**—Comby summarizes and comments on Holmes' recent article with this title in an American journal, endorsing the latter's views.

Bulletin de l'Académie de Médecine, Paris

August 7, LXXVIII, No. 31, pp. 107-118

14 Technic for Treatment of Arteriovenous Aneurysm in the Neck. (Artériorraphie transjugulaire suivie de capitonnage veineux.) R. le Fort.—p. 108.
15 *Device to Protect the Ears against Shock from Explosions. (Obturateurs d'oreilles à chambre de détente.) L. and M. Verain.—p. 111.
16 *Malaria at Salonica. E. Marchoux.—p. 112.
17 *Continuous Aspiration in Treatment of Purulent Pleurisy. J. S. Dauriac.—p. 115.

15. **Device to Protect the Ear Against the Air Shock of Explosions.**—Verain says that over 600 pairs of these little shock absorber obturators are already in use on the firing line and are proving extremely useful, especially for gunners and artillery men in general. They consist of a hollow celluloid or metal olive about 12 mm. long by 9 or 10 mm. wide, provided with a perforated transverse septum inside or other protecting contrivance. The little obturator fits tight into the outer ear but does not deafen it although absorbing the air shock.

16 and 17. See Paris Letter in The Journal, September 15, p. 926.

Journal de Médecine de Bordeaux

August, LXXXVIII, No. 9, pp. 169-192

18 *Traumatic Periosteoma. H. L. Rocher.—p. 171.
19 Case of Regular, Total Hexadactylism. J. Vergely.—p. 174.
20 Fractures of Lower Jaw. J. Vitrac.—p. 176.
21 A Week at the University of Jena in 1909. R. Cruchet.—p. 180.

18. **Traumatic Periosteoma.**—Rocher describes nine cases in which a bullet or scrap of shell grazed the bone or it was injured by contusion otherwise, and the irritated periosteum developed an exuberant bone growth. In four of the cases

the field was practically aseptic, no infectious process developing. In the others the persistence of a fistula indicated that something was wrong. The probe introduced into the fistula passed through a cavity in the periosteoma and the tip could be felt scraping bare bone. When inaccessible to palpation, the periosteoma was shown up by the Roentgen rays. He advises immediate excision, with care to clear away every trace of fungous tissue which otherwise might keep up the suppuration. An electric head lamp is almost indispensable for these operations. Any scrap of periosteum left may bring recurrence. He completes the operation by swabbing with zinc chlorid.

Nourrisson, Paris

July, V, No. 4, pp. 193-256

22 The Intoxication with Disease of the Digestive Apparatus in Infants. A. B. Marfan.—p. 193.
23 Causes of Chronic Stridor in Infants; Four Cases, M. Lavergne and Donzeau.—p. 220.
24 Extraction of Brooch in Throat of Seven Months Infant for Thirty-Four Hours. E. Apert.—p. 230.

Paris Médical

August 11, VII, No. 32, pp. 129-144

25 *Malarial Erythema. H. de Brun.—p. 129.
26 *Erythema after Use of Salvarsan and its Substitutes. G. Milian.—p. 131.
27 Traumatic Facial Diplegia. R. Oppenheim and G. L. Hallez.—p. 136.
28 Superficial Tension of Royat Mineral Waters. G. Perrin.—p. 139.

25. **Malarial Eruptions.**—De Brun states that his systematic examination of 160 patients with malaria has convinced him that it must be classed with the eruptive diseases. He found the eruption marked in sixty-two of the 160 and it developed later in some of the others. Probably the reason why it has escaped attention hitherto, he remarks, is because the eruption is not of a noticeable tint and it fluctuates. It is generally of a pale pink or light violet color but may sometimes be a bright pink or lilac. It may spread all over the body, sparing only the face, neck, soles and palms. The general aspect is much like that of measles only for the lighter tint and that it never displays the miniature flat papules of measles, and is usually restricted to certain regions, mostly the sides of the chest and thorax. In the milder cases the eruption is represented merely by a few scattered patches, not more than ten or twelve in all, scattered on the flanks, the sides of the chest, the region above the trochanters, the vicinity of the false ribs or the axillary margin of the pectoralis. The erythem disappears under pressure but returns at once, and it is liable to blanch as the region is exposed to the air. The erythem is most pronounced in the morning; bed rest seems to favor its eruption. There was never any subjective symptom from it and he never saw signs of desquamation. The erythem seems to appear and disappear in waves. The momentary complete eclipses are characteristic, as also the final complete disappearance. Probably the patients with negative findings had been examined only during the intermissions of the eruption. No regularity in the development of the waves could be detected; the eruption was noted as well in the febrile as in the afebrile patients, and whatever its intensity, its evolution was always silent. In short, he adds in conclusion, the erythem of malaria occupies a special place in the group of toxidermias.

26. **Eruptions Under Salvarsan.**—Milian noted eruptions of different types in over 3 per cent. of 326 men being treated with salvarsan or neosalvarsan and in over 7 per cent. of 206 women. They were more common possibly with intravenous than with intramuscular injections of the drug. In three more recent cases there was a grave exfoliating erythrodermia and in two others rubeola developed immediately after the injection. He is inclined to accept the idea that the drug has a stimulating action on certain germs, including the unknown germ of rubeola, notwithstanding its destructive action on spirochetes. The phenomenon, he continues, is like mercurial stomatitis. The mercury does not cause the stomatitis directly, but it stimulates germs already present on the gums to start the stomatitis. Boils are liable to develop under salvarsan in those with furunculosis, and lichen planus to flare up anew.

Presse Médicale, Paris

July 26, XXV, No. 42, pp. 433-440

29 *Diagnosis of Tuberculous Otitis. M. Lermoyez.—p. 433.
30 Management of Malaria in Soldiers. Wurtz.—p. 435.
31 Aspect of Stools in Atypical Forms of Amebic Dysentery. C. Mattéi and M. Bloch.—p. 436.
32 Alcohol in Disinfection of the Hands. E. Viguier.—p. 437.

29. **Tuberculous Otorrhea.**—Lermoyez insists that many cases of otitis media are the work of the tubercle bacillus. He found tuberculous otorrhea ten times to every ninety osteomyelitic cases. In 20 per cent. of the tuberculous otorrheas both ears were affected. Fully 75 per cent. of all the cases he has encountered were in children, but among the adults affected there were four times as many men as women. He declares that we must stop looking at such patients through the keyhole and bring them out into the open for examination. A suppurating bone process requires treatment along the same lines whether it is in the ear or hip joint, and exclusion of tuberculosis and syphilis is the first step. The tuberculous nature of the process may be suspected only from the lack of normal healing after a mastoid operation. Even a retrospective diagnosis like this may be important as a guide to further treatment. Other aids in the differential diagnosis are the insidious onset, the paradoxic deafness, the white caries, pale granulations, and the persisting fistula. Microscopic examination of one of the pale granulations may reveal the tuberculous follicle, and inoculation of guinea-pigs is conclusive. He warns against tuberculin tests, as any reaction at the focus to a tuberculin test is liable to have disastrous effects in the ear. It might even bring on facial paralysis, labyrinthitis or meningitis, and hence should be strictly proscribed.

Progrês Mêdical, Paris

July 28, XXXII, No. 30, pp. 249-256

33 *The Oculocardiac Reflex in Bradycardia. A. Mougeot.—p. 249.
34 *Emetin plus Arsenic in Treatment of Amebic Dysentery. H. Aimé.—p. 253.

August 4, No. 31, pp. 257-264

35 *Paroxysmal Stuttering. M. Briant and J. Philippe.—p. 257.
36 Choice of Anesthetic in War Surgery. G. Jeanneney.—p. 261.
37 Invaliding of Soldiers with General Paralysis. J. Crinon.—p. 262.

33. **Significance of the Oculocardiac Reflex in Bradycardia.**—Mougeot's experience with fourteen patients with bradycardia has confirmed the assumption that the persistence of the oculocardiac reflex eliminates true heart block from the diagnosis and proves the nervous origin of the bradycardia. On the other hand, a negative response to the ocular test does not decisively disprove the nervous nature of the trouble. In some of the men suffering from shell shock he has found total sinusal bradycardia with no oculocardiac reaction. He explains the mechanism for this, ascribing it to the anastomoses described by Ramon y Cajal between the posterior root of the trigeminal and the tenth and eleventh pairs.

34. **Combined Emetin and Arsenic Treatment of Amebic Dysentery.**—Aimé reports prompt improvement in eighteen cases of amebic dysentery, that had long resisted other measures, when he instituted combined emetin and atoxyl treatment. The atoxyl was the only form of arsenic available at the time. Three of the men were apparently completely cured and ten others much improved. Even in the five cases listed as failures, the general health showed great benefit.

35. **Stuttering as Symptom of Shell Shock.**—Briand and Philippe comment on the remarkably small number of cases of stuttering brought on or aroused by the emotional stress of the war. In one case the soldier had stuttered from childhood. His speech had been natural until the age of 4 when, after a severe fright, he began to stutter and has had periods of stuttering since, alternating with periods of normal speech. The stuttering came on again in a severe form after shell shock, the features of the case analogous to those with rebellious deafmutism of emotional origin. The course of training which conquered the tendency to stuttering is described in detail. It commenced with breathing exercises, showing the patient the tracings and how he must learn to manage the diaphragm to bring the tracing to normal, training him in exerting the muscles necessary to regulate dia-

phragm functioning. This was accompanied by reading exercises in solitude, slowly reading the words in a low voice to himself, noting the letters that start the stuttering and meeting each one with a deeper, more prolonged respiration. The breathing exercises are done more readily while walking slowly than when seated or reclining. Any overexertion, exhaustion or strong emotion is liable to bring a setback. In the case described the stuttering was conquered in the course of three weeks.

Revue Médicale de la Suisse Romande, Geneva

March, XXXVII, No. 3, pp. 93-172

38 Recklinghausen's Disease in Grandmother, Mother and Daughter, Otherwise Apparently Healthy. C. Du Bois.—p. 93.
39 *Estimation of Arterial Blood Pressure by Auscultation Findings. J. Tchertkoff.—p. 104.
40 Microscopic Study of Gonorrheal Lesions in the Male. J. Wirtsch. —p. 113.
41 *Purpura Affecting the Bladder. C. Perrier.—p. 139.
42 *Fastening the Tube in the Throat. (La méthode du Prof. Polverini, de Milan, pour la fixation du tube, dans les sténoses laryngées.) E. Bernasconi.—p. 144.
43 Acute Circumscribed Edema of Lip and Cheeks, also around the Anus. E. de La Harpe.—p. 151.

May, No. 5, pp. 253-328

44 *Mushroom Poisonings in Geneva District in 1916. M. Roch.—p. 253.
45 Heart Disturbances and Military Service. E. Thomas.—p. 270.
46 *Dilatation with Metallic Mercury and Catheterization under Screen Control for Cicatricial Stenosis of the Esophagus. E. Kummer and G. Moppert.—p. 284.
47 *Remission for Nine Days in Case of Fatal Mushroom Poisoning. P. Gautier and C. Saloz.—p. 291.

39. **Auscultation of the Blood Pressure.**—Tchertkoff gives the tabulated findings with Korotkoff's method and with Pachon's oscillometer. He declares that the former is the simplest, the easiest and the least exposed to subjective errors. The findings are as exact as with the oscillometer for the minimal pressure and are more reliable for the maximal. The Riva-Rocci cuff is placed on the arm at the lower third and we listen through a small phonendoscope or stethoscope placed lightly on the humeral artery in the bend of the elbow. As the cuff is inflated we hear nothing, but as the mercury drops we hear four phases of sounds and a phase of silence. These phases are so distinct and significant that this rapid method seems destined to supplant all others. He tabulates the findings in twenty-eight reclining patients, the arm lying along the body, also in eleven reclining with the wrist on a level with the heart, and in ten in which the oscillometer and the Korotkoff were each applied to the humeral artery.

41. **Purpura Affecting the Bladder.**—Perrier's patient was a man of 31. There were other manifestations of the purpura on the skin. The previously healthy man was free from venereal disease and the hematuria had developed after a few days of high fever. In a second case, the young man had no appreciable manifestations of the purpura except in the bladder. When one has once seen the patches of purpura in the bladder it is impossible ever to mistake them again unless possibly for the patches of ecchymosis sometimes found in the bladder with incipient local tuberculosis.

42. **Fastening the Intubation Tube in the Throat.**—Bernasconi expatiates on the great advantages of Polverini's method of holding the tube in place by a thread brought out through the middle of the neck below the chin. There are no blood vessels or nerves in this region to be injured, and the needle passes readily through the aponeurosis, the thyroid membrane and adipose tissue. When it is a question otherwise of tracheotomy, this method of fastening the tube will be found comparatively simple and always reliable. The O'Dwyer tube has two small holes drilled at the front near the usual thread hole. The finger is introduced into the throat as for intubation. An ordinary long and stout needle, carrying a long, strong but not too heavy silk thread, is inserted into the neck exactly on the median line, and is passed through the thyroid membrane at the junction of the middle and lower thirds. With the index finger of the left hand introduced into the throat, as for intubation, the point of the needle is felt as it enters the throat and is guided upward until it can be seized and drawn out of the mouth, with its thread, above, the ends of the thread projecting from the throat below. The upper end is passed through the two holes made for it in the head of the tube and is tied in a double knot, about 50 or 60 cm. below the upper free ends of the thread. The tube is then placed in the throat, and the long lower ends of the thread projecting from the neck are tied over gauze and protected by gauze fastened to the neck with adhesive plaster. The tube can be drawn out to be cleansed by pulling on the upper ends of the thread after untying the lower ends. If the tube has to be worn a long time, Polverini usually cuts off the upper ends of the thread as the child is liable to bite them off and the parts left might slide down and obstruct the tube. In the five cases inspected by Bernasconi, the children had worn their tubes for several months and ate fluid and solid foods as if there was nothing in their throats. As the holes are in the front of the head of the tube, this prevents its twisting around the thread. (This method of ensuring the stability of intubation has already been described in The Journal, Feb. 10, 1917, p. 495.) The results in the twenty cases in which Polverini has applied this method in the last ten years have apparently confirmed its harmlessness while there could never be any question as to its efficiency. Two illustrations show the exact technic.

44. **Mushroom Poisoning.**—Roch relates that there was an unusual number of cases of mushroom poisoning in the Geneva district last fall. He knows of 100 cases, with four deaths, and summarizes the details from the twenty-four families involved. Early and profuse vomiting was what saved many from death, and the physician should strive to ensure this in all cases. When any one shows signs of mushroom poisoning, all who have partaken of the meal should be made to vomit freely, even although they show no symptoms at the time of anything wrong. Aside from this indication, it seems useless to give emetics and purgatives because they do not act until there is nothing left to evacuate. They merely increase and prolong the emetic-cathartic phenomena of the poisoning to no purpose. No benefit seemed to be derived from charcoal, but at least it did no harm. Treatment can be only symptomatic, drinking copiously, injecting saline and giving laudanum, camphor or caffein as indicated. Roch analyzes the clinical picture induced by the different mushrooms. The *Entoloma lividus* was responsible for a number of the poisonings. This mushroom was exceptionally abundant last September. It has a delicate white meat, with a tempting odor, and deceptively resembles some harmless varieties. One or two hours after eating there is sudden uncontrollable vomiting, diarrhea for four or five days, intense thirst, sometimes pupil disturbances and syncopes, the throat intensely dry. The gravity of the accidents with mushroom poisoning is usually in inverse proportion to the length of the incubation. When the vomiting comes on early the attack is usually mild. Roch's article is a comprehensive study of poisoning from the various species of mushrooms.

46. **Treatment of Cicatricial Stenosis of the Esophagus.**—The patient in the severe case described, with illustrations, was a robust man of 42. By persevering retrograde dilatation over several months he is now practically cured. Kummer and Moppert found metallic mercury a great help in this. The mercury does not stick to the walls, and by its weight it settles down on the constricted portion of the esophagus and, by its property of separating into minute globules, its heavy droplets worm their way through the stricture and help dilate it. They say that there need be no fear of poisoning as metallic mercury is not absorbed at all. At first they rinsed it out through the gastrostomy opening, but later allowed it to pass off through the bowel. It took from one to eighteen days for the 10 c.c. to be entirely voided. It never caused any disorder except sometimes a little tension in the abdomen the few hours that preceded its evacuation by the rectum. Another advantage of the mercury was that it cast such a clear shadow that this, besides its mechanical aid, materially facilitated the working of the dilating catheter into the stricture during radioscopy. In conclusion they endorse the suggestion that when a caustic has been swal-

lowed, an esophagus sound should be introduced at once and left permanently until healing is complete. The presence of the sound not only wards off stricture but it allows the patient to be fed from the first.

47. **Mushroom Poisoning.**—The robust man had apparently recovered from the poisoning with the amanita mushroom and had returned home from the hospital. After *nine days* of complete remission, the symptoms returned and proved fatal the thirtieth day after the *mushrooms had* been eaten.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 4, XLVII, No. 31, pp. 993-1024

48 *Problems of Metabolism and Immunity in Dermatology. B. Bloch. —p. 993.
49 *Cause of Granulation of Blood in Malaria. L. Hirschfeld.—p. 1007.
50 Metal-Albumin Preparation for Diagnosis of Pregnancy. III. (*Schwangerschaftsreaktion mit Dia-Sorcym-Placentae.*) K. Kottmann.—p. 1012.

48. ***Problems of Metabolism and Immunity in Dermatology.***—Among the points to which Bloch calls attention is the preeminently important part played by the skin in the phenomena of allergic immunity and sensitization. This is in marked contrast to serum immunity, as in tetanus and diphtheria, in which the blood is the bearer of the defensive forces. The history of our knowledge of immunity, beginning with Jenner's vaccination, has almost invariably made its progress by study of the skin, from Koch's fundamental inoculation of guinea-pigs with tuberculosis to the Pirquet reaction, trichophytosis, syphilis and tuberculosis. *Infectious diseases* which are followed by allergic modifications that confer immunity, and the acute exanthems, scarlet fever, measles, etc., which are likewise distinguished by conferring immunity, all play such an important rôle in the skin that this suggests that the skin has some biologic function not yet fully understood. The skin is open to the external world and is thus exposed to all infections coming from without and it has adapted itself to defensive reactions. This adaptation is acquired, not natural, as is evidenced by the lesser reacting power of the skin of animals and of young infants. By this function of the skin part, at least, of the invading germs are held back and the internal organs spared. He reiterates that the body fluids are not concerned in immunity; it is of tissue origin. He has presented direct proof of this with trichophytosis; a scrap of skin from a person who had had this affection, transplanted into a normal person, conferred allergy on the latter. This seems to be the case also with variola. In discussing the part played by the skin in syphilis, he remarks that salvarsan cures so quickly that the tissues have not had time to develop allergic modifications under the influence of the spirochetes. The consequence is that a new infection from without, or the rousing of some slumbering nest of spirochetes, induces a response in the body the same as if the individual had never been infected with syphilis. We are liable now to encounter patients with a fresh primary lesion, buboes and syphilids, all at once.

49. **Granulation of Malarial Blood Is Due to the Anemia.**—Hirschfeld discusses the layer of granulations which is evident, even to the naked eye, when a smear is taken of malarial blood. The corpuscles seem to pile up at some one point of the smear. He noticed this in several hundreds of patients with acute or chronic malaria, and it was extremely pronounced in malarial coma and blackwater fever. His analysis of the conditions has shown that the red corpuscles drop out of the blood plasma the more readily, the more diluted the blood. Hence the speed with which the blood corpuscles form a sediment, in their own blood plasma, is directly proportional to the degree of the anemia. It is this rapid dropping out of the reds in malarial blood which gives it the granulated aspect. It has nothing to do with the coagulability of the blood nor with agglutination phenomena. As soon as the number of corpuscles falls below a certain ratio to the blood plasma, then this rapid dropping down of the reds is liable to occur. In other words, it is a phenomenon of hypoglobulia. By adding plain plasma to any blood a point is reached at which the reds drop to the bottom. It is a sign of anemia, he emphasizes, but he has had no chance to study it on any but malarial subjects. In physiologic salt solution the reds are in a condition of suspension balance, and they do not drop down. In normal blood the corpuscles are so close together that the elasticity of the others prevents the sinking to the bottom of a corpuscle that has started to fall. In anemic blood this hindrance to sedimentation is lacking, the corpuscles being so few and far apart.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 8, XXXVIII, No. 54, pp. 761-776

51 *Auscultation through the Mouth. G. A. Notari.—p. 767.

51. **Auscultation Through the Mouth.**—Notari describes a puzzling case in which by auscultating the percussion sounds through the mouth an exact differential diagnosis was possible. This oral auscultation has been introduced mainly by Cardarelli, Galvagni, Frugoni and other Italians. It throws light on certain respiratory and heart disturbances otherwise inexplicable. In the present case, the tracings show intermittent respiratory functioning not synchronous with the heart action. In all the other cases published the heart was evidently responsible for the respiratory intermittent functioning, but in this case the diaphragm seemed to be exclusively responsible. Oscillatory vibration of the diaphragm was manifest on oral auscultation, a respiratory neurosis, in an otherwise clinically normal soldier.

Policlinico, Rome

August 19, XXIV, No. 34, pp. 1033-1060

52 *Vitiligo with Inherited Syphilis; Two Cases. P. F. Arullani.—p. 1033.
53 Geometric Principles Applied to Roentgen Localization of Foreign Bodies. G. Egidi.—p. 1038.
54 Industrial Hygiene. (*Per la vigilanza igienico-sanitaria del lavoro.*) A. Ranelletti.—p. 1040.
55 The Red Cross and Tuberculosis. P. Bolognini.—p. 1043.
56 Suggestions to Improve the Surgical and Medical Service at the Front. G. Perez.—p. 1045; G. Pisano.—p. 1046.
57 Suggestion to Use Pine Tar in Early Treatment of Wounds. T. Rossini.—p. 1048.

52. **Vitiligo with Inherited Syphilis.**—The Wassermann reaction was negative in one of the two cases reported, and was not tested in the other, but the diagnosis of inherited syphilis was beyond question in both. The father of one had progressive paralysis and the daughter, a woman now 30, showed signs of incipient tabes besides the vitiligo and tendency to hysteria. The skin affection had been manifest for fifteen years in this case and for ten in the other patient, a man of 41. There was nothing to suggest tuberculosis in either case.

Riforma Medica, Naples

July 21, XXXIII, No. 29, pp. 729-748

58 Factitious Talipes. A. Mori.—p. 729. Concluded in No. 30, p. 755.
59 Symptoms of Hysteria Complicating Relics of Neuritic Phenomena; Cure by Suggestion. A. Ziveri.—p. 735.

August 4, No. 31, pp. 769-788

60 Consent to Operations. (*Sulla obligatorieta degli atti operativi.*) L. Ferrannini.—p. 769.
61 Mixed Typhoid and Paratyphoid Infections. A. Zironi.—p. 771.
62 The Latest Regulations as to Physical Disqualifications for Military Service. Editorial.—p. 787.

August 11, No. 32, pp. 789-808

63 *Syphilis in the Army, and Prophylaxis. G. Moscati.—p. 789.
64 *Gas Gangrene and Phlegmons. A. Nacciarone.—p. 790. Commenced in No. 31, p. 772.
65 Primary Tuberculous Ulceration of the Tongue. P. Amorosi.—p. 798.
66 The Inventor of the Immersion Objective for Microscopes. G. B. Amici, 1786-1863. A. Ferrannini.—p. 803.

63. **Syphilis in the Army.**—Moscati emphasizes the necessity for seeking out every syphilitic in the army and ensuring him thorough treatment year after year. According to the system in vogue, men on the firing line with early syphilis are treated there and a course in the hospital is not considered necessary at this stage. The consequence is that the men conceal their syphilis. Rheumatoid pains, etc., are reported to the physician and the men are sent to the home zone hospitals for treatment of "rheumatism." Moscati has found a large proportion of the rheumatism cases to be syphilis alone or associated with rheumatism. The percentage of cases of syphilis during peace times is out of proportion to

the number of cases of declared syphilis now in military circles. Some new factor has intervened and this, he thinks, is either the disinclination to confess venereal disease or ignorance of its existence. It is undoubtedly a fact that ignored syphilis is responsible for the nonhealing of wounds in certain cases.

64. **Gas Phlegmon and Gas Gangrene.**—Nacciarone reports in detail about twenty cases to emphasize the advantages of the technic advocated. When applied within the first six hours he counts on 90 per cent. of cures even when the gas gangrene had developed into a vast lesion. When the bone lesion was limited or only the soft parts were involved and not over twelve hours had elapsed he was able to cure 88 per cent. of the patients without mutilations. In those in which twenty-four hours had elapsed, he cured 85 per cent., including 4 per cent. requiring mutilating operations. In 82 per cent. the complete functional use of the limb was restored. He warns that treatment of wounds with balsam of Peru cuts off the oxygen and thus favors the development of anaerobic germs. Whatever the state of the infection, he begins by degreasing with benzin, then drying and dabbing with 10 per cent. tincture of iodin, swabbing the whole limb with this. Then he incises the limb lengthwise, making as many long incisions parallel to the axis of the limb as are necessary to open up all the muscles involved and open the bone to the air. The first incision is carried through the hole made by the projectile. For the leg he makes at least three incisions, one each in the front, rear and side. There must be ample access to inspect the spaces between each muscle. After the skin is incised, he separates the muscles and fascia with the fingers, refraining from injuring the vital connections between muscles and vessels, but making way for copious irrigation of all the interspaces between muscles and aponeuroses, not leaving even the remotest crevice unopened up. He uses up in ten minutes as much as 20 liters of the iodin antiseptic solution. He has even used 40 liters in some cases, sponging it into every crevice with gauze held with forceps. When no more gas can be forced out by pressure on the tissues and there is no further odor in the depths, he delimits the part involved with the actual cautery to form a wall against further extension, or makes a ring of subcutaneous injections of a 2 per cent. iodized solution. Three or four drain tubes are then introduced at the best points for effectual drainage, draining besides with gauze, after flushing again with the iodin solution. The gas process generally extends upward. This treatment is repeated from one to three times in the twenty-four hours, clearing out any necrotic tissues found. The fetid odor usually lasts for three or four dressings. When suppuration sets in, the patient may be regarded as out of danger from the gas infection. In addition to these local measures, which he describes with minute detail, he combats the general intoxication by saline infusion (for which he uses a special formula) and stimulates the organic defences by giving a little quinin twice a day, with camphorated oil, a little brandy and tepid black coffee. His experience with iodin, he declares, speaks for itself, the men with severe gas gangrene returning to their posts, with complete functional use of their limb, in thirty or forty days. His formula for the antiseptic fluid with which he combats the gas infection is as follows: iodin, 1 gm.; sodium iodid, 1 gm.; sodium chlorid, 3 gm.; sodium carbonate, 2 gm., with water to 1,000 gm. It is not necessary to boil the water, he says, these ingredients rapidly sterilizing it. He finds it convenient to keep a mother solution constantly on hand consisting of 25 gm. each of iodin and sodium iodid; 75 gm. sodium chlorid, and 50 gm. sodium carbonate, with 1,000 gm. water. From 40 to 120 c.c. of this mixture are added to each liter of the water ready to use.

Rivista Critica di Clinica Medica, Florence

June 16, XVIII, No. 24, 253-260

67 Extremely Painful Hyperesthesia of the Knee of Hysteric Origin in Soldier. (Simulazione o nevrosi?) A. Sbrocchi.—p. 257. Conclusion.

July 14, No. 28, pp. 285-292

68 *Chronic Hemorrhagic Purpura and its Pathogenesis. F. Schupfer. —p. 285. Commenced in No. 23, p. 245.

69 Paralysis from War Wounds; Four Cases. G. Barbensi.—p. 290. Commenced in No. 27, p. 280.

July 28, No. 30, pp. 301-308

70 *Clinical and Experimental Research on Infectious Jaundice in Troops on Active Service. I. Civalleri.—p. 301. Commenced in No. 29, p. 293.

71 Infectious Hemorrhagic Purpura with Initial Abdominal Symptoms in Soldier. L. Tomasetti and A. Costa.—p. 303.

68. **Chronic Hemorrhagic Purpura.**—Schupfer reports in detail with necropsy a case of this kind in a woman of 29 who was under observation for fourteen years, and compares this case with twenty-six others encountered during the same period. He is convinced that it is more than a coincidence that tuberculosis was evident in a large proportion of the cases and in two there was an unmistakable hereditary burden, so that 55.54 per cent. of the total twenty-seven were plainly tuberculous. The necropsy of the case described in detail showed tuberculous cavities in the left lung with numerous tubercle bacilli. The right suprarenal was intact but the left was much enlarged and the seat of tuberculous disease. The woman had had fifteen severe recurrences of the purpura in the course of ten years. No tendency to hemophilia was discoverable in the family. The first attack subsided under ergot, epinephrin, iron and sodium salicylate. There was no further trouble for nearly a year. Then the febrile purpura returned with enlargement of the spleen, but subsided under injections of normal horse serum, calcium chlorid by the mouth and gelatin in enemas. Schupfer reviews the literature on the subject of chronic purpura, and claims that the tubercle bacillus is indirectly responsible in certain cases, and the endocrine system is probably involved in all.

70. **Camp Infectious Jaundice.**—Civalleri regards the jaundice in question as undoubtedly the same disease as that described by Japanese authors as spirochetosis, but he was unable to transmit the disease from man to guinea-pigs except in one instance, while the transmission from man to man was common. Transmission from guinea-pig to guinea-pig was unfailing, using the urine. The bile also gave positive results as it swarmed with the spirochetes. Transmission from one guinea-pig to others was also demonstrated by means of contaminated food.

Brazil-Medico, Rio de Janeiro

July 14, XXXI, No. 28, pp. 233-242

72 *Circular Heart Murmur. (Sopro circular de Miguel Couto.) J. L. de Mesquita.—p. 233.

July 21, No. 29, pp. 243-250

73 The Protozoan Parasites of the Mollusk Polydora Socialis. G. de Faria and others.—p. 243.

74 Research on Nematodes of Allodapa Species. A. de B. Barreto. —p. 243.

75 Epidemic Poliomyelitis with Cephaloplegia for Ten Days in Year Old Child. Recovery. R. Moreira.—p. 244.

72. **Circular Heart Murmur.**—De Mesquita refers to the murmur with circular propagation to which attention was called a while ago by Miguel Couto, the leading internist of Brazil. He had noticed it only with mitral insufficiency. De Mesquita reports two cases which show that it may be encountered both during and without asystoly. His further experience has demonstrated that neither mitral relative insufficiency nor passive congestion of the lungs has anything to do with its production. In a typical case described, the girl had had acute rheumatism a year before. The heart was somewhat enlarged and the murmur was holosystolic. It was heard starting at the apex and running around the thorax in a circle, heard in the left axilla, the interscapular region, and the right axilla, and it was still perceptible in the front right half of the chest. De Mesquita discusses the mechanism of its production. Its disappearance seems to be a favorable omen.

Cronica Medica, Lima, Peru

August, XXXIV, No. 650, pp. 269-310

76 *Physiopathologic Study of Cholesterol. H. Castañeda.—p. 273.

77 *Alcoholic Polyneuritis. E. Odriozola.—p. 282.

78 Factitious Affections. G. F. Davila.—p. 287. Conclusion.

79 Regulation of Prostitution. Committee Report.—p. 306.

76. **Present Status of Our Knowledge of Cholesterol.**—Castañeda describes the present assumptions as to the production of cholesterol in the body and its elimination, mentioning the various tests for it in vogue. The significance of the cholesterol content of the blood in different conditions is also discussed.

77. **Alcoholic Polyneuritis.**—Odriozola analyzes a case in a syphilitic in which the rapid onset of the symptoms of polyneuritis seemed to exclude tabes and the absence of sphincter trouble excluded diffuse myelitis. With syphilitic paralysis there is contracture, while in this case the paralysis was of the flaccid type. The known abuse of alcohol suggested a toxic origin for the pains and paraplegia. The prognosis of alcoholic polyneuritis is favorable, as a rule, but he has had two cases in which fatal bulbar symptoms became superposed, the clinical picture deceptively simulating Landry's ascending paralysis. In treatment, besides massage of the groups of muscles involved and reeducation of movements, systematic galvanization of all the muscles involved and strychnin are liable to give great relief and improvement. Atrophy of the muscles comes on early but the above measures properly applied arrest it almost without fail. Practically complete recovery depends only on the perseverance and skill with which the above measures are applied.

Prensa Medica Argentina, Buenos Aires

July 30, IV, No. 6, pp. 67-76

80 Transplantable Spontaneous Pavement Epithelioma in White Rat. A. H. Roffo.—p. 67.
81 Transverse Displacement of the Testicle plus Supernumerary Testicle. L. E. Pagliere and E. Pozzi.—p. 68.

August 10, No. 7, pp. 77-88

82 *Enrichment of Tubercle Bacilli in Sputum. L. Ymaz.—p. 79.
83 *Echinococcus Cyst in the Liver Perforating into Pleura. C. I. Allende and N. D. Rosso.—p. 80.

82. **Enrichment of Bacilli in Sputum.**—Ymaz first treats the sputum with a 50 per cent. antiformin solution in an amount equal to or only a little less than that of the sputum. It is possible to use instead ordinary Javel water or sodium hydrate. This does not seem to affect the shape or staining properties of the bacilli. Boiling the mixture is a help. He then adds to the homogeneized sputum an equal amount of syrup (*jarabe*) with specific gravity of 1.260. A small amount of ether is added and well mixed, to form an emulsion, but not agitating with the receptacle closed. Then, after lively centrifugation the bacilli will be found in the whitish zone that forms at the plane separating the two fluids. The ether aids in bringing the bacilli to the surface. He says this technic is an efficient method for enrichment while it does away with the necessity for estimating the specific gravity.

83. **Echinococcus Cyst of the Liver Perforating Into the Pleura.**—An operation for supposed purulent pleurisy was done on a married woman of 43, and the pleura was found to contain pus and numbers of daughter cysts, some empty and others intact. The cavity was drained with a large rubber drain but the temperature persisted high and dulness at the seventh rib confirmed the assumption of an echinococcus cyst in the upper part of the liver. This was drained from below the diaphragm through a second incision, suturing the lips of the cyst to the skin. Bile came away with pus but the condition rapidly improved. The retrospective diagnosis was that the cyst had perforated first into a bronchus, the symptoms and expectoration at the time having been ascribed to an acute bronchial affection. A few weeks later the cyst perforated into the pleural cavity, the bronchial outlet evidently having proved insufficient. The ample drainage at the lowest point at both operations conquered the disease. While the cyst was being rinsed out with hydrogen dioxid, some of it got into the bronchi through the primary perforation and poured out through the mouth, causing cyanosis and asphyxia from the foam filling the air passages on that side. The blood pressure dropped rapidly and the condition seemed alarming at first, but the suffocation was gradually overcome. The patient had become unconscious but under stimulants to the heart and inhalation of oxygen she very slowly revived, the blood pressure slowly returning to normal. The next morning there was much mental confusion and dysphasia, with a suggestion of total right hemiplegia. The motor phenomena subsided during the day but the confusion persisted and did not finally disappear until the fourth day. Recovery then was soon practically complete.

Revista de la Asociacion Medica Argentina, Buenos Aires

July, XXVI, No. 152, pp. 967-1254

84 *Tuberculosis and Paroxysmal Thyroid Insufficiency. (Caso de rheumatismo tiroideo y menstruacion febril.) E. Albina.—p. 967.
85 Memoirs of a Physician Hygienist. E. R. Coni.—p. 984. To be continued. See news item in The Journal, September 15, p. 926.
86 Crime by the Irresponsible. (Informe del defensor de C. S. Godino.) R. Emiliani.—p. 1021.
87 Psammoma of the Sheath of the Optic Nerve. P. B. Ferro.—p. 1040.
88 *Surgical Repair. (*Anaplasticas.*) M. Gamboa.—p. 1053.
89 *Chronic Appendicitis and Sclerocystic Ovaritis. R. S. Gomez.—p. 1085.
90 *Cholelithiasis with Menstrual Hypercholesterolemia. G. P. Goñalons.—p. 1091.
91 *Coagulation Index of Blood. J. M. Hitce and R. Iribarne.—p. 1094.
92 *Correction of Atresia of the Nostrils. J. M. Jorge, Jr.—p. 1102.
93 History of Bubonic Plague. A. M. del Pont.—p. 1115. Continuation.
94 *Best Mode of Access to the Space below the Diaphragm. L. Merola.—p. 1164.

84. **Tuberculosis and Paroxysmal Thyroid Insufficiency.**—Albina's patient was a girl of 14 who had been menstruating for eight months. Each menstrual period was preceded by a day of subfebrile temperature, sweating and persisting pains in some of the joints. They swelled and were tender but there was no edema in the region nor atrophy of muscle tissue. All these disturbances subsided with the menses; during the intervals there was no pain or fever. The findings at one apex were suspicious of tuberculosis, and the general aspect suggested defective thyroid functioning. The lack of any benefit from the salicylates suggested that the joint troubles were of toxic origin. The diagnosis of rheumatism from thyroid insufficiency on a tuberculous soil was sustained by treatment on this assumption. Under thyroid treatment the menses returned to normal, without joint disturbances and without fever. The thyroid treatment was then stopped and treatment for incipient tuberculosis was pushed. After ten months of this the patient was restored to clinical health, with no return of pains or fever after the first month. He began treatment by giving sodium bicarbonate freely for three days and then thyroid treatment for three weeks in increasing doses.

88. **Anaplastic Operations.**—Gamboa gives an illustrated description of a number of particularly interesting cases treated by restorative surgical measures. One boy of 11 who had had a large angiosarcoma of the cheek removed showed five years later very little trace of the extensive operation. The defect had been covered with a pedunculated flap from the neck. The other anaplastic operations were to correct contracture or growing together of parts after burns. The left arm of one child of 11 had grown to her side. The principle which Gamboa specially emphasizes is that the scar tissue should all be cut away and discarded, and only normal skin, with its adipose tissue should be used for flaps to repair the defects. When there is flexion from contracture the whole contracting tissue should be cut away and the resulting defect patched with normal tissue. The parts must be kept in extension until the flaps have grown into place. When the plastic operation is on the fingers he advises a single large flap taken from the abdomen. When it has healed in place another operation is necessary to separate the fingers. This gave perfect functional results in his experience.

89. **Chronic Appendicitis and Ovaritis.**—Gomez declares that chronic appendicitis is habitually accompanied by sclerocystic degeneration of the ovaries. The symptoms from the latter should not be overlooked in studying a case of chronic appendicitis. If the cysts are small and few, it suffices to obliterate them with ignipunctures, but if they are large and numerous, or if there are blood cysts or degeneration of the corpora lutea, a wedge including the lesions should be cut out, and the uterus straightened by ligamentopexy if there

is displacement. If the lesions are bilateral or only in the left ovary or there are still other lesions to be attacked, a median laparotomy is required.

90. **Hypercholesterolemia and Menstruation.**—Goñalons' curves show a marked rise in the cholesterol content of the blood during the menses. In some cases the increase was marked also during the days just preceding. He analyzed twenty-seven complete menstrual cycles, recording the cholesterol content of the blood daily for thirty days and in some cases for two or three months. The blood was drawn from the fold of the elbow; the women were all healthy or convalescent.

91. **Coagulation Index of the Blood**.—Hitce and Iribarne prevented coagulation of the blood by adding 0.0004 gm. sodium citrate to the 0.04 c.c. of blood in each of six test tubes. Then they restored the coagulating property to the blood by reactivating with progressive amounts of calcium. The amounts used in his tests were, respectively, 0 gm.; 0.0001; 0.0002; 0.0003; 0.0004 and 0.0008 gm. In addition to the coagulating power, he tested the resisting power of the red corpuscles, using a 7 per thousand salt solution in amounts of 4 c.c.; 3.8; 3.6; 3.4; 3.2 and 3 c.c. This supplied an index of coagulation for the individual blood. Discovery of an excessive tendency to coagulation suggests measures to ward off embolism. On the other hand, low coagulating power may give the clue to unsuspected liver disease.

92. **Cicatricial Atresia of the Nose.**—The atresia was the consequence of smallpox lesions. Jorge corrected it by making a horizontal incision just below the nose and suturing to the lower lip of the incision the edge of a square pedunculated flap from the upper arm fastened across the face. The raw side of the flap was turned upward, and the plastic operation when concluded proved very satisfactory, the patient now breathing freely through her nose, and with scarcely a trace of the incision below.

94. **Access to Space Below the Diaphragm.**—Merola lauds the advantages of a slanting incision with resection of the rib. The incision runs from the scapular line downward and inward, following at first the ninth rib. The operation is transpleuro-abdominal and requires a U-shaped suture. This incision is the best mode of access also to the cardia and lower esophagus, as he shows by illustrations taken from the cadaver. For this, the incision is supplemented by a vertical incision beginning at the upper end of the first. This allows a triangular flap to be turned back and after resection of the tenth rib and of part of the eleventh and twelfth, the organs below are exposed. The important field thus opened up is amazingly extensive and access to the deep lying organs rendered simple and easy. The suprarenals are under one's hand, as also the posterior aspect of the liver, etc.

Semana Medica, Buenos Aires

June 28, XXIV, No. 26, pp. 767-810

95 Hemorrhoids. J. M. Jorge, Jr.—p. 767.
96 *Lymphocytosis in Syphilitics. C. P. Mayer and A. C. Gourdy.—p. 779. Conclusion.

96. **Lymphocytosis in Syphilitics.**—This is the conclusion of this extensive communication which has been appearing weekly in the *Semana* nearly all the year. The present installment brings to 502 the number of cases of syphilis tested for lymphocytosis, the data in each case being given with the differential blood count on different occasions. Mayer and Gourdy regard the lymphocytosis as the most constant sign of syphilitic infection saying that it appears with the infection and persists throughout life. With inherited syphilis it does not appear until after infancy. Superposed infectious processes may mask the syphilitic lymphocytosis, but as they subside the latter reappears. It is an earlier phenomenon than the Wassermann reaction, and persists after the latter has disappeared. The lymphocytosis is reactivated by specific treatment although not directly, as the latter does not induce lymphocytosis in nonsyphilitics. They are convinced that the lymphocytosis is a biologic reaction which indicates persistence of the causal spirochetes. Also that this alone justifies the diagnosis of syphilis even when no other signs or symptoms of it are apparent. It may be the only sign of syphilis in the wife or husband of a syphilitic, and lymphocytosis in a wet nurse should always be regarded with suspicion. In conclusion they reiterate that the lymphocytosis persists as an indelible sign of syphilis, and that this persistence indicates that treatment for the syphilis should be kept up interminably. The lymphocyte count is therefore the indispensable complement of the Wassermann test in diagnosis and in estimation of the prognosis. Specific treatment modifies the lymphocytosis but never abolishes it entirely.

Siglo Medico, Madrid

August 4, LXIV, No. 3321, pp. 565-584

97 Mechanism of Enucleation of the Erythroblasts in Mammals. F. Mas y Magro.—p. 566. Concluded in No. 3322, p. 592.
98 *Hematuria with Kidney Stones; Four Cases. A. P. Martin.—p. 568.
99 Present Status of Catheterization of the Duodenum. S. de S. Maria, and M. de Logrono.—p. 572.
100 Acute Edema of the Male Genital Organs. (La genesis de las tumescencias penoescrotales.) Sicilia.—p. 573.
101 Psychasthenia. A. Sanchez-Herrero.—p. 574.

98. **Hematuria with Kidney Stone.**—Martin remarks that nephrolithiasis should be suspected when the urine shows blood after exercise but only a small amount and only transiently. In three of the four personal cases reported this transient hematuria was the only symptom to call attention to the stone in the kidney. In the other case there was pain in both kidneys and occasional hematuria. The cystoscopic findings in the bladder were normal but one kidney was very large, tender and knobby, and the diagnosis of sarcoma was confirmed by other findings.

Russkiy Vrach, Petrograd

XVI, No. 13, pp. 289-312

102 *Pretuberculosis in Children and Treatment with Tuberculin Inunctions. N. R. Blumenau.—p. 289.
103 Old Age as a Physiologic-Pathologic Process. M. S. Milman.—p. 295.
104 Experience with Vaccination against Typhoid. V. V. Pezharskaya.—p. 301. Concluded in No. 14, p. 324.
105 Physiologic Basis for Electrocardiography and Its Clinical Importance. M. M. Gubergritz.—p. 305. Continuation.

102. **Treatment of "Pretuberculosis" in Children.**—Blumenau is convinced that certain subjective symptoms are the work of tubercle bacilli before they have started manifest tuberculosis. This is particularly evident in children, and he recommends for it tuberculin treatment by the inunction technic. He reports experiments on guinea-pigs which apparently confirm that toxins rubbed into the intact skin, after it has been shaved and cleared of grease with ether, pass through the skin as through a special filter, and induce the production of antibodies in the organism. The animals kept well and even increased in weight although they were being given inunctions of diphtheria toxin, given by Moro's technic in a 50 per cent. ointment, rubbed into scarifications, and they survived then the subcutaneous injection of four times the fatal dose of diphtheria toxin. His experiments on animals were not numerous, but the results were so convincing that he applied the method at once to seventy children. The technic he found most effectual was to apply a drop of pure tuberculin to the forearm and then shave off a scrap of skin through it. The mixture of the superficial layer of the epidermis and the tuberculin formed a thin salve, like lanolin, and this mixture on the back of the razor was then rubbed into the skin until dry. A scrap of sticking plaster was then applied over the spot. When removed twenty-four or forty-eight hours later the skin underneath may display a strong, moderate or weak reaction, and the inunction is repeated after an interval corresponding to the strength of the reaction. The dose of tuberculin is also progressively increased to a total of four drops. At first the intervals are usually three or five days, but when the four drop dose is reached, the intervals are a week. The results in the cases of well defined tuberculosis, especially of the lungs, were what might be expected as these types are scarcely amenable to treatment. But in incipient or occult tuberculosis the therapeutic results were prompt and striking.

He gives a brief summary of eighteen cases of various types. Some of the children were only 9 or 10 months old but the majority were between 2 and 13. One child of 13, for example, had been having for six weeks pains in the chest, head and side, coughed a little, sweated freely at night and felt chilly. The appetite was poor and the child was growing thin. There was dulness over the right apex and the temperature wavered between 36.9 and 38.3 C. The tuberculin inunctions were given for a month, a total of ten inunctions. The reaction was pronounced at first but gradually grew less and less distinct while the improvement was marked in every respect. There were no further pains except occasionally in the left side at night when the child lay on that side. The cough disappeared, the appetite returned and the temperature keeps within the normal range, while the child has increased in weight. One 9 months babe had long been coughing and there was a discharge from the ears and from a fistula in suppurating cervical glands, with diffuse dry râles in the lungs. In the course of three and a half months the child had been given twelve inunctions and had increased in weight from 9,000 to 9,500 gm., the cough had ceased, and there was no further discharge from the ears or fistula. The râles had also disappeared.

The parents of children brought to the dispensary often call attention to the child's lassitude, apathy and drowsiness or the reverse, excessive nervousness and irritability, with loss of appetite, restless sleep, frequent and persistent headache, palpitations, cough, pains in the side or chest and in the bones of the arms or legs. The majority of such children are frail, and badly nourished but not all present anemia. The diagnosis of "school anemia" should not be accepted until all other causes have been excluded. It is not enough to examine the child himself; inquiry must be made as to the health of the parents and other relatives, whether any of them have had pleurisy or lingering lung trouble, or any children have died from meningitis, and whether there is any one in the building that coughs much. None of the subjective symptoms are pathognomonic of tuberculosis, of course, but when a possible source of infection is known, the tuberculin test will reveal in many instances that they are the work of chronic self-intoxication.

Hospitalstidende, Copenhagen

July 25, LX, No. 30, pp. 717-740

106 Bullous Psoriasis. A. Kissmeyer.—p. 717.

Ugeskrift for Læger, Copenhagen

July 5, LXXIX, No. 27, pp. 1077-1118

107 *Roentgenotherapy of Sarcomas. S. Nordentoft.—p. 1077.
108 *Roentgenotherapy of Syringomyelia, Acromegaly, Polycythemia, Hypertrophy of the Prostate and Retroperitoneal Tuberculous Glands. S. Nordentoft.—p. 1086.

July 12, No. 28, pp. 1119-1176

109 Present Status of Dietetic Treatment of Diabetes. V. Scheel.—p. 1119.

July 9, No. 29, pp. 1177-1232

110 *Alimentary Gastro-Enteritis and Xerophthalmia in Infants. S. Monrad.—p. 1177.

107. **Roentgenotherapy of Sarcoma.**—Nordentoft makes a practice of reporting once or twice a year on the present status of patients to whom he has given a course of treatment with the Roentgen rays at some time for malignant disease. He lists them alphabetically by arbitrary letters, the first series being Aa, Bb, etc., the third, Ca, Cb, etc. He here describes the outcome in eleven cases of sarcoma. One farmer of 37 had had one testicle removed on account of sarcoma. Within a few months there were signs of extension of the tumor into the abdomen, with great emaciation, anemia and pains requiring morphin constantly.. Under a month of rœntgenotherapy the pains disappeared, weight, appetite and sleep became normal and the hard tumor deep in the abdomen could no longer be palpated. Now, four months later, his earning capacity is fully restored. The pains subsided by the next day after the first exposure. Apparently complete recovery is also evident in two other men of 25 and 71 with sarcoma in the pelvis. A third succumbed later to infarction of the lung and recurrence of the tumor. One man of 60 with a large ulcerating sarcoma on the buttocks, of eight months' standing, by the fifth week after the first exposure had merely a depressed cicatrix left as the relics of his malignant disease. Another man of 70 had a tumor in the neck encroaching on the median line and causing suffocation. It had been growing for four months. Under a single exposure it subsided like dew before the sun. Six months later there was a fatal recurrence in the mediastinum. A similar sarcoma in the neck and mediastinum of a man of 64 did not seem to be influenced by the exposures and the patient succumbed, but the improvement was pronounced in a third case, the large tumor visible in the roentgenogram finally disappearing almost completely. A clinical cure was also realized in a case of sarcoma of the small pelvis in an unmarried woman. There has been no recurrence in one case of melanosarcoma of the iris and orbit treated by Roentgen exposures after the operation, but in several similar cases the patients died within a few months from heart failure or diffuse metastasis.

108. **Widening the Indications for Roentgenotherapy.**—Supplementary to the above communication, Nordentoft describes excellent results from roentgenotherapy in a case of acromegaly, the subjective disturbances subsiding and earning capacity being regained, although the acromegalic changes were stationary. Also in a case of polycythemia, the much enlarged liver and spleen subsiding to normal size, although the blood picture showed no change. Also in a case of retroperitoneal tuberculous glands after a number of glands had been removed by a laparotomy. Great improvement followed the exposures also in a case of hypertrophied prostate with retention. Even those writers who do not admit that the prostate is sensitive to the Roentgen rays, recognize that they may have a favorable action on the irritative and nervous symptoms with hypertrophied prostate. Their action here parallels that of Roentgen exposures in case of pylorospasm and hypersecretion with gastric ulcer. Nordentoft emphasizes that roentgenotherapy in the early stages of prostate trouble might prevent the development of the hypertrophy, adding that it would be interesting to investigate whether hypertrophy of the prostate occurs among men working on or with Roentgen apparatus.

110. **Alimentary Gastro-Enteritis and Xerophthalmia in Infants.**—Monrad does not agree with Bloch's statements summarized in abstracts in The Journal, May 12 and 19, 1917, pp. 1444 and 1516), in regard to disturbances in infants from too exclusive carbohydrate feeding or fat deficiency. Monrad has examined the recent records of his service and has found that 205 infants with fat dyspepsia were kept on fat-poor diet for over two months without any symptoms developing suggesting injury from fat deficiency. His experiments and experiences apparently indicate that it is immaterial whether an infant is getting 0.75 or 0.5 or 0.1 per cent. of fat if it is getting the suitable amount of carbohydrates. He protests against Bloch's assumptions as to xerophthalmia being a fat deficiency affection, saying that it is not fat deficiency but pasteurization of the milk which entails the xerosis. Five infants with severe fat dyspepsia and complicating pyuria, otitis or pyodermia, kept on fat-poor food, did not thrive but lay with eyes closed and it was found that all had xerosis of the conjunctiva. Until a few months before this the children in his service had been given raw milk, but a change of owners at the dairy was followed by pasteurization of all the milk. These infants had thus been fed with sterilized milk mixtures, a denatured food, lacking in vitamins, and the conditions were thus propitious for the development of xerosis. Proof of this assumption was obtained by keeping the children on the same food as before but preceding each feeding with 10 gm. of raw fresh milk. The result was the prompt subsidence of the xerosis. It had entirely disappeared by the end of a few weeks. This experience, he thinks, establishes beyond question that it could not have been the small amount of fat in the fresh milk given, but the vitamin content which was responsible for the subsidence of the xerosis. Xerophthalmia must thus be regarded as a consequence of lack of vitamins.

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COOPERATION BETWEEN PHARMACOLOGY AND THERAPEUTICS *

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It is important that a healthy cooperation should exist between those who are engaged in the scientific study of drug action and those who use drugs for the purpose of curing or alleviating disease; for the problems of pharmacology, like those of pathology, have a very immediate bearing on medical practice. Established modes of treatment frequently form the starting point of scientific studies, and the exact knowledge thus gained leads in turn to greater precision in treatment. Pharmacologic studies have uncovered new therapeutic possibilities that have ultimately proved useful in the clinic. Finally, a clear recognition of the fact that substances of similar chemical structure frequently possess pharmacologic properties that are similar but not identical has opened up a vast field of research. Numerous compounds of a given type are now produced with comparative ease by the organic chemist. While many or most of these may possess no great practical advantage over their original prototypes, yet such studies are constantly leading to improvements in our remedies, and the possibility is always present that the systematic combination of chemical and pharmacologic research will tap important fields that have hardly been suspected hitherto.

Now more than ever before, therapeutic advance depends on an intelligent utilization of the methods, the criticisms and the new discoveries of pharmacology. Older remedies are being restudied, and from the host of newer ones that are constantly being placed before the profession an intelligent choice must be made. Before I undertake to discuss how cooperation between the pharmacologist and therapeutist may be promoted, however, it may be well to point out some of the factors which tend to separate these two classes of workers. In the first place, their attitudes toward their respective problems are essentially different. The pharmacologist contemplates with scientific skepticism that which is unproved, and he proceeds slowly and carefully from the known to the unknown. The therapeutist, on the other hand, brought face to face with a crisis in the life of his patient, cannot refuse to try the unproved when remedies of known efficacy are lacking. Hence he often grasps at straws, being restrained only by the possibility of doing harm to his patient. Such a practice, justifiable in itself, too often leads to those habits of inaccurate reasoning that are reflected in therapeutic literature. Optimism in practice often means an unjustified and uncritical enthusiasm in the interpretation of results.

The pharmacologist and the therapeutist are further separated by the conditions under which their observations are commonly made. In the laboratory the action of drugs is usually studied on normal animals, and toxic doses can be administered with impunity. In the clinic, on the other hand, therapeutic doses alone are used, and the effects of these are often modified by disease. The pharmacologist is permitted to employ methods of study which involve operative or other harmful procedures. The clinician is restricted to those methods of study that can be used without harm to his patient. Finally, the laboratory worker plans a series of experiments, and he endeavors to eliminate errors by repetition and by controlling the various factors that might influence his results. In therapeutics the number of observations is necessarily limited by the available clinical material, and the interpretation of results is often hampered by the fact that the effect of other factors, such as the natural course of the disease and the action of the other drugs used, is difficult to estimate and is, indeed, often estimated incorrectly. Under such conditions, years may elapse before even a simple therapeutic problem is conclusively answered.

As I have said, pharmacologic studies are usually made on normal animals. In seeking to utilize the knowledge thus obtained for therapeutic purposes, the following questions arise: 1. Are the effects observed produced by doses that can safely and easily be administered to patients? 2. Will the human organism react in the same manner as the animal studied? 3. How is this reaction modified by disease?

The question of dosage, simple as it may seem, has caused and will probably continue to cause occasional therapeutic stumbles. The fact that large doses of strychnin were known to produce a marked rise of arterial pressure in animal experiments was in part responsible for its extensive use by clinicians in conditions of low pressure. Yet it now seems established that in safe doses strychnin does not raise the blood pressure materially, either in man or in animals. The rise of pressure, therefore, is a toxic effect; and, so far as we know, it is not available for therapeutic purposes. Due consideration must also be given to the fact that in the laboratory intravenous injections are frequently used, whereas in medical practice these are seldom given except in emergencies. Finally, different species of animals may vary in their reactions to a given drug. When the reaction is essentially the same in a variety of mammals, it may be assumed that the human organism will respond in a similar manner;

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* Chairman's address, read before the Section on Pharmacology and Therapeutics at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

but when the reaction varies, the effect on man cannot safely be predicted from laboratory studies. In practice, moreover, even lesser quantitative variations in response may become of paramount importance, for it is our purpose to secure therapeutic results, and at the same time to avoid unpleasant side effects.

One of the most important methods for helping to bridge over the gap between animal pharmacology and practical therapeutics is the accurate study of the ts produced when drugs are given in the usual inal doses to human beings. The methods loyed in making such studies must naturally be free from the possibility of doing harm. Fortunately a great variety of new methods have been developed in recent years which may be applied to the study of human functions. Without attempting to name all of these, I mention the following: bloodless determinations of the arterial and venous pressures; graphic records of the gastric contractions, of the arterial and venous pulse waves and of the electric changes accompanying cardiac activity; roentgenographic examinations of the alimentary tract; determinations of the rate of metabolism; chemical analyses of the alveolar air, of small quantities of blood and of excreta, and estimations of the various immune bodies in the blood. Each new method that can be applied to the study of human functions not only advances our knowledge of these functions and of their perversions in disease, but also makes possible more accurate studies on how functions are influenced by various remedial measures. In many cases such studies can be carried out on normal individuals, and within a short space of time sufficient data can be accumulated to establish with scientific accuracy certain aspects of drug action.

Ultimately, however, we must answer the question: Are these drug effects of value in combating the disturbances of functions that are encountered in disease? The final answer to this question can seldom if ever be given from studies either on normal animals or on normal men. In certain instances the diseased function is unusually susceptible to drug action. The body temperature of a febrile patient, for example, is reduced more easily by antipyretic drugs than is the body temperature of a normal person. Digitalis in therapeutic doses has relatively little effect on the heart rate when this is controlled in the usual way from the sinus region. Its reputation for slowing the heart of patients is based almost exclusively on observations which were made on those suffering from auricular fibrillation. Diuretics of the caffein group produce a moderate diuresis in the healthy man, and may be ineffective or harmful in nephritic edema, whereas in cardiac edema they often cause a veritable flood of urine. The dilatation of the bronchi produced by epinephrin is most plainly demonstrable in conditions of bronchial constriction, whether produced experimentally or occurring during asthma. Finally, the treatment of infections can manifestly be tested only on infected animals or human beings.

Not infrequently the remark is made that the value of a therapeutic measure is determined solely by clinical experience. While I have no desire to contradict this assertion, it should be pointed out that ordinary clinical observations are often extremely difficult to interpret, owing to the vagaries of disease and to the many remedies that are so commonly employed in a single case. The past history of therapeutics warns us that in order to avoid error we need as much assistance as possible from every source. Pharmacology may not, indeed, answer therapeutic problems directly, but at least it aids in their solution. It shows how drug action may be made the subject of accurate study, and the critical attitude which it adopts must be carried over into the interpretation of therapeutic results, if progress in that subject is to be placed on a firm foundation.

On the other hand, pharmacologists could, I believe, be of greater help to those who work in the clinic if they would fully realize how their results may be given a form more suited to clinical needs. What, for example, is the effect of a given drug in small doses, especially when given over a long period of time? How are the effects modified when animals have been made the subject of disease? What pharmacologic problems can be studied on man himself, and especially on patients who are taking the treatment usually given for their disease? Work on such lines as these whether by pharmacologists or by clinicians, will help to maintain contact between the science of drug action and the art of treatment.

THE PROTECTION OF THE HEALTH OF THE WORKER IN WAR *

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The preservation of the health of the war worker is one of the most important problems of the next two years and one which, if a correct solution is found from a rational and practical standpoint, may lead to revolutionary changes in the majority of factories in the United States. The health of the war worker is a national asset, and must be scrupulously guarded along the most approved lines compatible with present factory administration. It must be remembered that any revolutionary project, no matter how carefully thought out, is potentially destructive, and that the greatest care must be taken in introducing reforms and changes to do so in such a way that maximum results can be obtained with a minimum amount of expense and change from existing conditions. In this paper I shall present briefly the experimental and practical data which apply to the protection of the health of the war worker, and a definite system of organization which is applicable to all factories doing war work and employing 1,000 or more employees.

HEALTH IN RELATION TO PRODUCTION

"Health is a condition of physical soundness or well being in which an organism discharges its functions efficiently."[1]

To maintain health means to maintain working efficiency, while reduction of health means loss of efficiency. Sickness decreases the individual's production, increases the risk of accident, and militates against the efficiency of the department. An epidemic of sickness can completely disorganize a department or even a whole shop.[2]

Health may be affected (1) by outside factors (environment, fatigue, accident), and (2) by internal factors (disease and defects).

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Encyclopaedia Britannica, Ed. 11, 13.

[2] Newman, George: Sickness and Injury, Memorandum 10, British Health of Munition Workers Committee, 1916.

OUTSIDE FACTORS

(*a*) *Environment.*—In factory work the health of the worker is menaced by three factors of environment, each of which can to a certain extent be overcome. These are poor ventilation (which should be coupled with heat and humidity), poor light, and dust. We will consider these briefly in order.

In muscular activity the glycogen of the muscle unites with oxygen from the blood, producing heat and combustion products, the most important of which is carbon dioxid. During work such as that done by the average factory worker, the amount of carbon dioxid thrown off in the expired air is about double the amount that is thrown off by the same person at rest. Along with this carbon dioxid there are thrown off by the working body emanations containing toxic protein products. These toxic products cause the odor and closeness of an ill ventilated room.

Recent investigation tends to show, however, that the lassitude, headache, and malaise experienced in a close atmosphere are due to heat and humidity rather than to the inspiration of waste products, and that the effect of heat and moisture on the skin is the determining cause of the discomfort. From these facts it is evident that not only must there be a free circulation of fresh air, but also the heat and humidity of the air surrounding the worker must be within certain definite limits. Briefly stated, factory air should not contain more than six parts of carbon dioxid in 10,000. The temperature should not, if it is possible to avoid it, exceed 68 F., and the humidity should not be higher than 72 wet bulb.

Good light is necessary not only for the health of the worker, but also for the efficiency of his work. This fact has been definitely realized in modern factory construction. Artificial illumination by electricity may be furnished by direct, indirect or semidirect methods of lighting. General semidirect supplemented by shaded individual lights probably give the best practical results. Each worker or group of workers can then control the light over the machine or group of machines being operated. The light should fall on the work, not on the operator's eyes. There are three dangers to be avoided: (1) overillumination, causing overstimulation of the retina and contracted iris; (2) underillumination, producing eye strain, and (3) reflected light from brightly polished metallic surfaces which tends to confuse and to produce the effect of overillumination. Poor illumination, besides injuring the worker and reducing the output, increases the number of accidents.

"The lighting of a factory is deemed to be insufficient if the illumination taken on the horizontal plane, 1 foot above the floor, falls below one third of a foot candle."[3]

(*b*) *Fatigue.*—"Fatigue is a diminution of the capacity for work which follows excess of work or lack of rest; and which is recognized on the subjective side by a characteristic sensation of malaise."[4]

No subject that has to do with industrial health has received more careful attention and consideration than industrial fatigue. The British Ministry of Munitions devotes a whole pamphlet or section of its report to its investigations and findings. Fatigue has also been exhaustively studied by Lee, Goldmark, Mosso and many others. Physiologically considered, muscular fatigue results from (1) poisons produced by contraction of striated muscle; (2) catabolism of the glycogen in the muscles, and (3) consumption of the glycogen stored in the muscles and the liver. Fatigue products are chemical substances acid in reaction. They consist of sarcolactic acid, monopotassium phosphates, and carbon dioxid. These substances circulating in the blood produce fatigue. They act not only on all the muscles of the body, but also on the central and end nerve cells. These waste products are eliminated slowly, and the body requires a period of rest for their complete elimination and the necessary tissue repair. If sufficient rest is not allowed between working days, a physiologic deficit must result. According to Goldmark,[5] "this is the essential injury of consecutive days, weeks and months of overtime work which we (shall) find common to many branches of industry — that the normal season of tissue repair between working days is cut down at the very time when the severest demands are being made on the human organism. Strain or work done after fatigue has set in not only costs more effort but accomplishes less."[2] This has been graphically shown by Lee:[6] "Effort increases with fatigue, but if work is reduced by one half the period of necessary rest can be reduced one half or three fourths as much again."

There are three stages of working power. In the first the working power gradually increases; it is the limbering up stage and is known as the stage of incitement. During this stage the output of the individual worker gradually increases. The second stage begins when the worker has gotten into full swing. This stage is known as the stage of practice; work becomes automatic, speedy and leaves free will for application to the general consideration of the work. After a certain period of time, the duration of which depends on the work, the physical condition of the worker and many other factors, the stage of fatigue is reached. This stage is usually characterized by a spurt or effort on the part of the worker to overcome the lassitude caused by fatigue products. These stages correspond to the action of isolated muscle electrically stimulated. Before fatigue reduces the contracting power of muscle there is a steplike rise, each contraction being more powerful than the last, until a certain height is reached, after which there is first a slow, followed by a rapid, fall in power. We must remember, however, the volitional control of the worker, and this is shown in the spurt. The spurt may occur at any time during the stage of practice, but it is particularly prevalent toward the end of a working period or during the stage of fatigue. This spurt is known as the end spurt, and "occurs where a worker makes a special effort to do his best before leaving off. This effort is coupled with a stage of excitement which is psychological depending on the approaching rest period. During this period accidents diminish."

It is evident on physiologic and psychologic grounds that overwork, an insufficient number of rest periods, and insufficiently long periods of rest all militate against the health of the worker, and increase the danger of accident.[7]

The type of work in different departments varies, and the physical condition of each worker varies. It is obvious, therefore, that to make hard and fast working hours for the whole factory, as is now done, is working a grave injustice on the workers of some departments and on the workers not physically fitted to work in certain departments. Therefore, I submit these principles: 1. Whenever possible, the working hours of a department should be governed by the type of work of the department. 2. Rest periods should be introduced as indicated by production and by the number of accidents. 3. In each department, only workers physically fit for the work of that department should be employed.

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[3] Oliver, Sir Thomas: Occupations, 1916, p. 33.

[4] Ogden, C. K.: The Nineteenth Century and After, February, 1917, p. 420.

[5] Goldmark, Josephine: Fatigue and Efficiency.

[6] Lee, F. S.: Fatigue, Harvey Lectures, 1906-1907, p. 172.

[7] Vernon, H. M.: Output in Relation to Hours of Work, Memorandum 12, British Health of Munition Workers Committee, 1916.

(*c*) *Accidents.*—Accidents are largely due to workers' so-called "carelessness." In a recent investigation of 1,000 accidents occurring at the Norton Company plant, 85 per cent. were found to be due to this cause. In many occupations, accident is undoubtedly due to monotony, breaking of rhythm, or complexity of work. The rendering of machinery safe is a science in itself, and large factories now employ safety engineers whose business it is to see that machines are fitted with the proper safeguards.

In the scientific consideration of accidents, injured workmen continuing to work should be classed and considered in the same way as are defectives, until they have completely recovered.

The proportion of accidents to sickness is generally considered very low. This is true in regard to time lost from work, but in actual numbers the records of the Norton Company show a remarkable equality. Thus, during the first three months of this year the number of employees applying for dispensary treatment was in the proportion of nineteen cases of sickness to twenty cases of accident.

Accidents should be treated promptly by trained assistants. When serious they should be treated by a physician. By prompt treatment I mean treatment within ten minutes of the time the accident occurs. The exact method of treatment of accidents has been discussed in a recent article.[8]

INTERNAL FACTORS

(*a*) *Defects.*—Physical defects militate against the health of a worker unless he is so placed that the character of his work and his mental ability allow him to keep up normal production without strain and without materially increasing the defect from which he is suffering. A defective worker is not by any means an inefficient worker. Inefficiency occurs only when the physical defect through fatigue or discomfort prevents the worker from producing a normal output. Often defective workers are the best workers in a department, but they will not remain so unless properly supervised. The method of supervision will be discussed later.

(*b*) *Disease.*—Sickness is prevalent among any large body of workers. It is most marked during the four winter months, and is an important factor in causing lost time. Our experience at the plant of the Norton Company during December, January and February, the worst months for sickness, showed that 27 per cent. of the men investigated were absent because of sickness, the remaining 73 per cent. being absent for personal reasons. Approximately 2 per cent. of the working force were absent each month because of sickness. It is obvious that sickness is probably the most important factor to be controlled in considering the protection of health, and I hope to show later the possibilities of reducing this to a minimum.

In considering the foregoing factors which control the health of the worker, it is evident that the responsibility for the workers' health falls on four men: the engineer of the plant, the safety engineer, the manager of the works, and the factory surgeon.

1. The engineer of the plant controls the external factors of environment.

2. The safety engineer controls the external factors of danger.

3. The manager of the works controls the external factors of fatigue.

4. The factory surgeon controls the internal factors of disease and defects.

No further consideration will be given the first three. Each is a specialty in itself.

We will now consider the work of the factory surgeon and the medical supervision of war workers.

The object of medical supervision is to control the health of the working force by instituting methods of prevention of disease and maintaining them; by the prompt attention to accidents and through careful after-care preventing disability as far as possible; by finding defects in workmen and repairing them, and if this is not possible, endeavoring to place the defective workman where he will be most efficient; by the education of the workman in matters of hygiene, and by the control of sanitation and matters pertaining to the health of the factory at large.

PHYSICAL EXAMINATIONS

The keystone of efficient knowledge of the physical condition of the worker is a physical examination. This fact is recognized in every hospital, college and army. With the knowledge gained by physical examination, defects discovered may be remedied, employees may be placed in departments in which their defects will not only not militate against their efficiency but where they may be actually improved. Workers may be stimulated to cooperate with the physician in helping themselves, and the close touch necessary for future supervision and advice established. The value of physical examinations to both factory and worker is becoming more plain each year.

Outside of the specific fundamental data obtained by the examination, perhaps the most important feature is the use of the knowledge thus obtained in placing defectives in their proper departments. With the Norton Company there are at present 401 defectives so placed that they are all doing excellent work and apparently improving rather than retrogressing.

Defects may be divided into two classes: (1) Those which can be relieved by medical supervision and by proper placing, and (2) those which can be assisted only by medical supervision.

In the first class belong defective eyes, defective ears, defective hearts, defective lungs, and certain defects of the extremities. Defective eyes and ears are of particular importance in certain office departments and in shop departments requiring keen vision in the work. Slight refractive errors if not corrected lead to eye strain and poor work, which is of advantage to neither factory nor worker. Slight deafness among stenographers using the phonograph causes great nervous strain, and such work should not be assigned. Defective hearts are more or less of a bugaboo. The average patient with compensated endocarditis is capable of considerable work without danger, provided sudden or prolonged strain is avoided. My experience tallies exactly with that of MacKenzie, who says: "If the rule that exercise should stop short of exhaustion be followed, it is surprising what an amount of effort can ultimately be endured by patients who may once have suffered from extreme heart failure. This will be appreciated by those who practice among the classes employed in hard manual labor."

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[8] Clark, W. I.: Medical Supervision of Factory Employees, The Journal A. M. A., Jan. 6, 1917, p. 5.

The Norton Company has ninety-two workers with defective hearts. Only two of these men have been forced to stop work because of broken compensation, and both after a rest were able to return and are now working. All are, of course, under careful supervision. The question of the seriously defective lung is quite different. Here the function of the health department must be to make an early diagnosis of tuberculosis or pneumonia, and see that the worker receives immediate and adequate care. In neither condition should one be permitted to work, but outside treatment should be arranged. It seems remarkable that not only have many persons with tuberculosis applied to the Norton Company for work, but even a few with pneumonia.

The handling of defective extremities is such a broad subject that it cannot be considered here.

In the second class belong those numerous minor defects so common among workers which if not checked and cared for sooner or later lead to marked disability.

In order that no defective may be transferred from a suitable to an unsuitable department, another physical examination should be made on all transfers, and this, together with the examination which all sick employees should receive at the main or subhospital when applying for relief, obviates the necessity of periodic examination of the entire factory force. Workers with severe defects should, however, be kept under close supervision, and should be reexamined once every six months or year.

Medical supervision should begin with the physical examination of the applicant and continue as long as he continues to work in the factory. He should be provided with careful and thorough examination and advice when he is sick. He should be given prompt and efficient treatment for every accident, no matter how slight, and this treatment should continue until the worker is able to resume work. Medical supervision should preserve the general health of all workers by supervising hygiene and sanitation at the factory, and it should educate by affording an opportunity for direct contact between physician and worker, and by the distribution of leaflets simply and clearly written on health subjects.

The great bulk of sickness among workers is of a minor nature; but unless this is given careful treatment, much more serious conditions are likely to follow. Thus at the Norton Company's plant, where the number of employees in office and shop approximates 4,500, during the first three months of this year, 1,920 patients applied for treatment, of which only 319, or a little under one sixth, could possibly be considered more than minor cases. The whole comfort, and much of the efficiency of the worker, however, depends on the relief of these milder ailments, and many, if not cared for, tend rapidly to become serious.

When we are confronted with figures like these, we realize the necessity of a sickness prevention movement similar to "safety first."

In short, sickness among workers is as prevalent as accidents, and should receive the same care and attention as accidents, if we are to preserve the health of the war worker. The best index as to the amount of sickness and the number of accidents at a factory is the lost time record. This may be divided into time lost from sickness, time lost from accident and time lost for personal reasons. I consider the personal lost time as a normal for sickness. If the sickness curve is lower than the personal curve, good medical service is being provided, and workers are availing themselves of it. During the past year the average number of hours lost from accident per month at the Norton Company plant employing about 4,500 workers was 328, or about six weeks' working time. In other words, the lost time each month was equivalent to six injuries each severe enough to incapacitate one worker for one week.

Good results can be obtained only by keeping a most careful check on each case of accident and sickness and by an efficient follow-up system; in other words, a close personal touch is the keynote of success.

The whole question of the preservation of the health of the war worker resolves itself into education and service: education of the employer as to the economy of preserving the health of his employee; education of the employee as to how to live and how to avail himself of medical supervision. Once this education has been accomplished, success is assured. The proper service is now to be considered.

The instruments of service are the industrial physician, the industrial nurse and the industrial hospital. The industrial physician is a specialist. His equipment and training are special, and more closely approximate those of the military surgeon than any other branch of the profession. His duties and responsibilities have been outlined above. The industrial nurse is also a specialist, and should receive a special form of training. In my experience the most adequate training is that given in the United States Army or Navy Medical Corps. The industrial hospital is a combination dispensary containing both medical and surgical units. It must be equipped (1) to provide room for physical examination; (2) to provide equipment adequate for the treatment of accidents, and (3) to provide for diagnosing all general medical cases and for the treatment of minor medical conditions. These three factors form a unit, and this unit can be extended as far as necessary by multiplication. It is customary, in large factories, to have an employment department where all applicants for positions apply. Therefore, the hospital should be placed in close proximity to this department in order that applicants after being registered may step into the examining room for their physical examinations. This examining room should be in immediate communication with the hospital in order to save the physician's time. It becomes evident that the hospital in connection with the employment department becomes a medical supervisory center and should be situated in the topographic center of the factory if possible. Depending on this main hospital, secondary units may be thrown out, each one complete but small, these in turn being situated in topographic centers of activity throughout the plant. Each subhospital should be capable of caring for accidents and minor sicknesses, and should be in touch with the main hospital by telephone. Each subhospital is in charge of an industrial nurse. This system can be carried out almost indefinitely, is absolutely pliable, and can be adapted to any type of factory. In small factories of 1,000 employees a main hospital alone is necessary. In larger factories one or more subhospitals are placed as indicated by the necessity. One subhospital is capable of handling the accidents and sicknesses of a thousand employees. It therefore can be rapidly figured how many subhospitals will be needed for the service of the employees in a factory.

All records, including physical examinations, should be kept in the main hospital, and all cases appearing in subhospitals should have records made, copies of which should be sent to the central hospital, in order that this record may be entered on the original report of the employee.

An industrial physician should make the rounds of each subhospital daily, and should go over the subhospital records and find out exactly how each case is progressing. If there is any reason to suspect that an employee is not doing well, he should be summoned by telephone and seen by the physician personally. The nurse should also have ready for the physician on his arrival any case which he does not consider himself competent to treat. Any serious cases arising in the subhospitals should be referred at once to the main hospital, or the physician should be summoned from the main hospital to give the necessary treatment.

The advantage of this subhospital system is that every injury is treated within ten minutes from the time it occurs. Redressings are done with great rapidity without the patient's being obliged to wait. Minor injuries and minor sicknesses receive adequate attention at the hands of a specially trained nurse without requiring the time of the physician.

The expense of maintaining a subhospital is less than the expense of time lost by injured and sick employees going a long distance to the central hospital. The records are kept carefully by this method, as every case of injury or sickness is reported directly to the central hospital.

This system has been used by the Norton Company for a year. During that time the subhospitals have administered on an average twenty-five treatments each a day. In the large number of minor accidents treated we have had no case of sepsis.

It must be remembered, however, that only industrial nurses should be given this responsibility, and that the limits of their power to treat cases should be firmly fixed. The industrial physician should remember that he is absolutely responsible for every case thus treated, and should go over the nurses' records with this in mind.

In closing, I feel that I cannot do better than quote the report of the British Health of Munition Workers Committee:

> The committee have received evidence and reports from all parts of the country of the economic and industrial value of the proper organization of a medical service within the factory, and they are convinced that both on grounds of health and of securing improved output this subject demands the immediate attention of employers, and that adequate schemes of treatment, especially of minor injuries, are an important means of preventing loss of time and efficiency among the workers. They recommend, therefore, that provision for organized treatment should be made in every munition factory.[2]

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ABSTRACT OF DISCUSSION

Dr. John R. Williams, Rochester, N. Y.: I think the study of the physical vigor of the worker is quite as important as the physical examination. By the use of the Collin dynamometer it is possible to measure and get a comparative estimate of the physical vigor of every person in this room in a few minutes. By making such observations under the definite conditions which one wishes to investigate, it is possible to determine whether or not the worker is being injured by the occupation.

I have employed this method with satisfactory results in some brief studies on the effect of undernutrition on certain persons. According to Dr. Ales Hrdlicka of the National Museum, Washington, the dynamometer as a means of measuring the muscular tone of the individual is quite as valuable a diagnostic instrument as is the thermometer or stethoscope. The effects of dissipation, bad food, worry, improper ventilation and fatigue, all have an appreciable effect on the muscular tone, which can be measured easily by this instrument. It seems to me that with this very simple apparatus we could readily determine whether the conditions in a factory were promoting the highest degree of efficiency in the worker.

Dr. David L. Edsall, Boston: In regard to Dr. Clark's paper, the present time is, as we know, a time in which things ought to be done as effectively as possible, and not from the accident of impulse. I want to urge the members of this section present, and other physicians whom they may influence, to make themselves familiar in detail with the reports of the British Health of Munition Workers Committee, from the standpoint of being able to give some wise advice to people from the hygienic standpoint; in regard to the control of industries at the present time under pressure because of the war.

Physicians, knowing this subject somewhat, ought to be familiar with those reports, at least they ought to be read, to give some wise advice as to controlling this matter, not through any patriotic impulse, which is wrong, if driving us to do too much, rather than to do a little; but do something based on better knowledge, based on the attitude of men like Dr. Clark, who has had much experience in it.

The other point is this: Medical men have properly had some feeling against the establishment position as that has sometimes been managed. I have not the slightest doubt that establishment physicians are here to stay and are going to increase in number, from the standpoint of doing work well for the public at large, as well as for certain employers of the people at large; but I have in mind that establishment physicians are going to increase, and going to increase in very great numbers, and more than there will be need to increase, unless the profession at large becomes more familiar with problems such as Dr. Clark has been describing. At the Massachusetts General Hospital in the past year or two we have had an industrial clinic running in the hands of Dr. Wright, just a big dispensary clinic of patients of industrial accidents and the effects thereof. He has seen in that time, in that one hospital, about 5,100 people who are exposed to very definite industrial accidents. They have not been recognized by the ordinary familiar methods. Dr. Wright has diagnosed in one year 147 cases of lead poisoning; and the doubtful ones were all proved by finding lead in the stools, or urine, or both. The physician needs to recognize, as Dr. Clark said, that this is technical work and needs technical training; and we need to recognize in the medical schools that we should teach the students something more about this than we have yet done; but the man who wishes to retain the power of competing against establishment physicians has still to recognize that he has got something there apart, but still has to learn it with an open mind, and to realize the fact that he does not know it.

Dr. J. W. Schereschewsky, Pittsburgh: You must remember that it is not men alone that win a war, but, coincidently, our ability to furnish the military establishments with all the supplies they can possibly need. Now the bulk of these supplies is something which we, used as we are to gigantic industrial operations, can hardly conceive of. If we are to wage this war effectively we must not forget the necessity for maintaining armies which may amount to several million persons. As these are necessarily able-bodied men, they reduce by that amount those available for industry. This means that not only must every industrial worker be more efficient than ever before, but that women must enter industries to a hitherto unprecedented extent.

In order to secure maximum individual effectiveness, we must not only carefully supervise the physical condition of the worker, but each individual must be placed under circumstances and in an environment enabling him to perform a maximum amount of work. Therefore, measures for the conservation of the health of workers are of vital importance to the country.

In order to secure this result, provision must be made for the following: (1) the establishment of minimum standards of industrial hygiene in work places; (2) prevention of occupational diseases and poisonings; (3) medical supervision of workers, and (4) community sanitation.

The object of all these provisions is, of course, not only to secure conditions favoring maximum production, but so to safeguard the health of workers that an absenteeism from preventable sickness shall be reduced to a minumum. One point which was brought out in Dr. Clark's paper must be insisted on, namely, the adaption of the worker to his job and the utilization of everybody, including physical defectives, to the fullest possible degree. We should by no means reject a skilled workman because of a certain minor physical defect, for if he is given work which can be satisfactorily performed without injury to the health, we can utilize him as effectively as though the defect had never existed. Finally, we must not lose sight of the necessity for creating good sanitary conditions in our industrial communities. It will not be enough for us to secure ideal factory conditions and effective supervision of the health of workers while in the working place unless at the same time we see that their surroundings after they leave the factory are also healthful.

The production of effective conservation and utilization of the resources of the nation in this period of national emergency evidently require the fullest cooperation of all the health resources of the country. We cannot hope to put forth our best efforts in carrying on this great struggle into which we have entered unless there is an effective union of all the health agencies of the country.

Dr. Oscar F. Dowling, New Orleans: Those of us who have been interested and have made investigations know that the best medical training is what we should set as the standard. Recently I had the pleasure of having some health officers say to me that when they got through and returned to their work they would show us "some sanitation." Camp experience has already convinced them that a county or town can be made healthful, something they did not believe a short time ago. If all the medical men not called to the front could serve a term in one of the camps, especially health officials, it would make for cooperation in the enforcement of protective measures. As it is, so few of them know anything of the value and effectiveness of this work.

This war will give us added respect for law. With us, and I presume it is true of every section, in theory the people have now a profound respect for the law, but once written, they think enforcement will take care of itself. No one feels responsible. We will now have an object lesson in the effect of obedience.

Dr. Herbert J. Cronin, Cambridge, Mass.: Dr. Clark's system of medical supervision of employees at the Norton Plant in Worcester is practically perfect. I would advise the physician, unacquainted with industrial medicine and about to establish medical supervision in a plant, to introduce Dr. Clark's system complete.

The operating expenses of medical supervision in industry must always be the serious consideration of the physician. A too expensive system may fail because the plant may feel that it cannot afford it. General managers ask, "How much does this cost?" Cost will interfere with your plans; it may even discourage you; but industry must be operated for a profit and a return demanded for money spent. The physician can show a large return if he proceeds slowly and spends cautiously. From my own observation of Dr. Clark's system, I consider it a most practical and inexpensive one.

The establishment of a first-aid hospital should be the first step for the physician on taking charge of the medical supervision of employees in industry. Gradually add the allied departments, such as physical examination of employees, visiting nurses, etc., but use the hospital as a center from which these other activities radiate.

Dr. R. W. Corwin, Pueblo, Colo.: The importance and benefit of first aid cannot be overestimated. The day is past when first aid can be neglected in any line of public industry; it must be considered in every branch of work, and, with equal justice, it should be extended to the home. The welfare of the man or employee should first be considered, then his family, and, last, the public or its representative, the employer, but all are vitally interested and should be keenly awake to its benefits and justice.

Dr. Otto P. Geier, Cincinnati: One point stands out which has not been mentioned, it seems to me, in connection with this paper and the discussion. We talk about shortage of labor and shortage of material; but there is bound to result a shortage of medical attendence as a result of the war. We point to the fact that over on the other side anywhere from 25,000 to 50,000 doctors have been withdrawn from attendance on the civil population. That will mean that there will be a shortage of 20 to 50 per cent. of medical attendance in this country, which in itself means a serious thing to the community and to labor. I think that the medical profession should take such steps as will intensify the plans of preventive medicine, as that is the only way to meet the extra service that is going to fall on the medical profession in this country. The industrial physician through his control of the medical problems of large groups of workers can assist considerably in meeting the problem.

Dr. W. Irving Clark, Jr., Worcester, Mass.: I urge every one to use every influence he has to have established in any factory that he may come in contact with medical supervision of factory employees, for three reasons: In the first place, because it is good for the employee; in the second place, because it is good for the community; in the third place, because it is good for production; and, if you want to put such a small thing in as the fourth place, it makes money for the factory. All of those points have been absolutely proved; and I simply want to make that one appeal to every one. I think that there is great danger at the present time of long hours and insufficient medical attention to the laborers. It is going to reduce the production; it is going to hurt the laborer; and if arrangements were made so that when a factory is established medical supervision is established with it as one of the definite departments of that factory, it would save both factory and workmen in a great many ways.

Contract Practice in the Netherlands.—The *Nederlandsch Tijdschrift voor Geneeskunde* states that an agreement has now been signed which puts an end to the discord between the organized profession and certain sickness insurance societies, especially those at Amsterdam. One of the ninety-five clauses in the contract is to the effect that the loss of membership in the national medical association automatically excludes from sickness insurance practice. The practice of the individual sickness insurance physician is restricted to 2,500 adults, and the income limit is, for the unmarried beneficiaries, 800 florins and for the married, 1,400 florins, allowing an extra 100 florins for each child after the first, to a maximum of five. The honorarium for the physician is at the rate of 3 florins per adult and 0.6 florins per child. (The Netherlands florin is a fraction over 40 cents.) For exceptional obstetric cases he is to get 10 florins, and for night visits, 1.50 florins extra. Other clauses state that the physician must not take money from the insurance patients, and do no insurance practice outside the societies signing the contract. A control bureau is provided for, with representatives from the physicians, the societies and pharmacists. The contract covers a five-year period, with optional renewal for three years further.

THE EARLY RECOGNITION OF MULTIPLE SCLEROSIS

WITH REPORT OF THIRTEEN CASES *

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MINNEAPOLIS

In the experience of European observers, disseminating multiple sclerosis is considered one of the most common organic diseases of the central nervous system, but is spoken of by American writers as of unusual occurrence, Church referring to it as uncommon. There is no evident reason why it should not occur as frequently in this country as abroad, and the only explanation for its infrequent recognition with us must be that many cases are at present overlooked; and if we are to withhold a positive diagnosis until the so-called classical syndrome of Charcot is presented in its entirety, or even a very close approach to this picture, a great majority of all cases of this exceedingly interesting and widely variant congeries will continue to pass unrecognized, for there is but a comparatively small proportion of all cases that present this grouping.

Close analysis of the commonly attributed etiologic factors, when applied to the life history of the process, must lead to the conclusion that the real cause or causes are as yet really entirely unknown. In what manner can previous acute infectious diseases, such as typhoid fever or pneumonia, traumatism, exposure or the puerperium act to initiate the development of succeeding foci of gliosis scattered with entire abandon throughout the sphere of the central nervous system, occurring, receding, with apparent clinical recovery, latent perhaps for years, again and again recurring and receding throughout a course of great chronicity? In what manner is it possible for these long past incidents to so affect the organism as to cause the repeated turning into the blood stream of some genetic agent, probably autotoxic in nature, to attack here and there limited patches of white or gray matter, destroying the myelin sheaths, leaving the naked axis cylinders and the cells largely intact and functioning, although suffering to some extent degenerative effects?

The only conceivable manner in which they can possibly operate, if at all, must be by establishing in the multiglandular system some vice of secretion, thus disturbing metabolism and at intervals pouring a toxin into the circulation. The alternative possibility, setting aside the usually attributed factors, would be some microbic agent acting directly or through its toxins. There is at present no conclusive proof whether the causes are endogenous or exogenous. Krafft-Ebing and Strümpell deny the importance of infectious diseases; Redlich believes the cause is exogenous; Strümpell and Hoffman incline to the endogenous origin of the process, and the peculiar characteristics of the disease certainly favor their position, for in a great majority of all cases no sufficient cause can be found.

In my series of thirteen cases no possible causative factors, even remote, could be found in six. Quite severe trauma had occurred in two, but in each case it antedated the initial symptom by a period of two years, too far in the past to be rationally included as a cause. In two others there had been exposure, one incidental to a country practice and the other to a farmer's life, while with two that gave a history of previous infectious disease, years had intervened. When we consider the many who suffer from these infections and do not develop multiple sclerosis, and the few who do, they cannot be logically regarded as causative unless the sequence is immediate or close. All the cases in this series are of a distinctly or highly neurotic type.

In sharp contrast to the entire uncertainty of all initial etiologic factors is the clear and striking influence of trauma and the puerperium in promoting the recrudescence of symptoms. The importance of both these factors is notably illustrated in Case 1:

REPORT OF CASES

Case 1.—Mrs. W. M. D., aged 30, housewife, came under observation, Jan. 22, 1917, having been referred by Dr. A. A. Laurent. Her family history was good, but she had had much trouble with tonsillitis as a child. When 15 years old she got wet at the time of her menstrual period. This was followed by what was called "dropsy" in the legs, and she could not walk without support at this time. She recovered and was married at the age of 17 and has had eight children. Following the birth of a child four years ago she could not walk well; the legs felt clumsy, and became almost powerless in five months; but she gradually got so she could walk quite well (never naturally), but could not run. With the birth of a child seven years ago she had weakness in the left arm. This hand was numb for a time, with the attack four years ago. At that time she had a severe fall on the steps and thinks she was made permanently worse by it.

About two years ago, after the birth of a child, her legs began to grow worse, and numbness again developed in the left hand. She had another fall at this time and was numb to the waist for three weeks, and the left leg has dragged more since then. This leg has always been the weaker. At times she has a sensation as if something were dropping in front of the eyes—black spots and flashes. She had a little trouble with speech seven years ago, and friends tell her that her voice has changed. She had some occipital headaches two years ago. Her memory is somewhat impaired. She has pyorrhea and several devitalized teeth. She is subject to sharp and sudden changes in ability to walk. She is in a good state of nutrition and has good color. She has a slight hitch in speech at times. The right pupil is somewhat the larger; both react sluggishly. There is an irregular moderate lateral and vertical nystagmus. The facial muscles and tongue are free. The right tonsil is large and has some pyorrhea. The reflexes at the right elbow are sharper than at the left. The patellar responses are sharply overactive and equal. There is no clonus, but there is a Babinski reflex on both sides and an Oppenheim sign on the left. While abdominal reflex is lacking, epigastric is present and greater on the left. There is slight diminution of tactile sense over the left hand. There is distinct ataxia of station and the gait is uncertain and somewhat stiff. Steps are short, with moderate limp in the left foot. There is no intention tremor, but some incoordination. A roentgenogram of the spine was negative. The eye grounds are normal. The Wassermann test of the blood was negative.

Case 2 shows the importance of the puerperium alone:

Case 2.—Mrs. V. B., aged 23, came under observation, Nov. 1, 1915. She was seen in consultation with Dr. J. H. Higgins. The family history was not significant.

The patient had measles at the age of 3, but no other acute illnesses, accidents or exposure. She was always anemic and suffered from chronic constipation. At the age of 19 she suddenly noticed that the hands were clumsy and shaky when she tried to use them. A day or two later she found difficulty

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* Read before the Section on Nervous and Mental Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

in walking, staggered, and had to hold something for support. There was some difficulty also in speech. This condition continued for three months, then largely but not completely cleared up. Numbness has been present in the hands and feet, but has now entirely disappeared. Speech also has become normal. There was also some dizziness. She gave birth to a child in May, 1915, and soon afterward noticed difficulty in walking and a numb feeling in the hands and feet. She had dizzy attacks, and in about two weeks got so she could not stand alone. She could not write legibly for a long time. No trouble was noticed with her speech. The right leg has been worse than the left. She is pale and poorly nourished. The pupils are negative. There is a quite marked nystagmus, lateral, rather slow, of quite wide amplitude and jerky. The corneal reflex is active, the pharyngeal somewhat slow. The face reflexes are negative, the face muscles free. The arm reflexes are negative; the grip weak and equal. The hands show very slight tremor and distinct incoordination. The gait is spastic-ataxic, chiefly ataxic, and there is marked ataxia of station. Speech is good. The patellar reflexes are overactive and about equal. Achilles reflex, clonus, and the toe sign of Babinski were demonstrated. Oppenheim and Gordon signs were present on the right, and there was a slight Babinski reflex on the left. The pulse was 72; pressure, 120 systolic, 85 diastolic; sounds clear. There was distinct improvement under fibrolysin. The patient was seen again, Feb. 17, 1917. She was now able to walk alone with difficulty; the condition varied at times, but in the main was stationary. During the past week the vision had become very dim; she could not read ordinary type at all. Dr. Pratt reports nothing except pallor of the disk. Vision is not improved by refraction.

The characteristic oscillation of the hand, or it may be of the head or leg, commonly denominated intention tremor, is distinct from the element of incoordination, but is probably closely allied with it. This occurs in only a moderate percentage of cases, and not always continually. Speech defects vary from a simple flat or monotonous tone, or slight dysarthria, to stuttering or occasionally showing complete scanning type, being present in only two cases here recorded, while some form of disturbed articulation was found in eight. One of the most frequently observed motor phenomena is nystagmus, said by Redlich to occur in about 50 per cent. of all cases. If the eye muscles are tested by being put in position of extreme imbalance laterally or vertically, a distinctly larger proportion will probably show this sign, and it may vary widely in amplitude, rapidity and rhythm. It was readily demonstrated in eleven cases of this group, and in the remaining two, the patients had poor fixation of the globes. Diplopia is found occasionally, but is not frequent.

The pupils often show distinct inequality, one being larger than the other, but this difference is often variable, present at one moment and not at another, or it may be constant. The light reflex may be sluggish; accommodation is usually normal. Ordinarily the pupil is circular, and the iris never takes on that flat, tightly drawn tense look; the velvety softness is gone, a condition as characteristic of the tabetic eye as the Argyll Robertson sign, but which I have never seen mentioned in any text. Disturbances of vision are of moderate frequence, occurring early, according to Stölting; in about one third of all cases, being the exact percentage in this series. It varies from simple dimness to irregular restriction of the field or amblyopia, sometimes with a degree of optic atrophy or some choking of the disk.

In the congeries of symptoms, subjective and objective, that unfold before the observer, we approach a most fascinating study. While the advent of the initial manifestation is usually abrupt and marked, it may at times be vague and indefinite. Perhaps an irregular and patchy hysteroid area of disturbed sensation, involving one or all of the sensory percepts, may herald its advent, or an immediate loss, in part or whole, of motor power in one or more extremities, or sudden dimness of vision; and not infrequently an apoplectiform attack may prove the prelude to many scenes to follow, as occurred in the following cases:

TABLE 1.—SUMMARY OF FINDINGS

Possible Etiologic Factors:	
Trauma	1 (2 years previous), 1, (2 yrs)
Condition aggravated by trauma	2
Exanthems	measles at 3, pneumonia at 10
Condition aggravated by pregnancy	2
Neuropathic heredity	4
Marked pyorrhea present	2
Miscellaneous	anemia, 1, frail, 1
Exposure, including overtax	5
Tonsillitis	1
Gonorrhea	1
Age at onset	14, 15, 15, 19, 21, 23, 23, 25, 27, 37, 42, 45, 69
Initial Symptoms:	
Dimness of vision	1
Motor disturbances	5
Sensory and motor disturbances	2
Apoplectiform	3
Extreme headaches	1
Sex:	
Males	6
Females	7
Symptoms:	
Inequality of pupils, 55 per cent.	7
Sluggish reflex of pupils	2
Nystagmus, 85 per cent.	11
Poor fixation of globes	2
Speech disturbances	8, 60 per cent. (only two being true scanning)
Intention tremor	5 (3 of these slight)
Tremor of head	2, 53 per cent.
Paresthesias, including hypesthesia:	
Hypalgesia and thermal sense	11, 85 per cent.
Motor disturbances:	
Monoparetic	3, trophic changes (with fibrillation) 1
Paraparetic	7, 85 per cent.
Hemiparetic	1, propulsion, 1
Disturbances of coordination	10, 80 per cent.
Disturbances of Vision:	
Dimness	4, 35 per cent.
Diplopia	2
Qualitative Changes in Deep Reflexes:	
Heightened	11, 85 per cent.
Abolished	1
Changes in epigastric and abdominal reflexes (usually diminution or loss on one side)	10, 80 per cent.
Pharyngeal reflex absent	2
Control of bladder lowered	5
Stereognosis diminished	2
Spontaneous Remissions:	
Marked	9, 70 per cent.
Slight	1
One case too recent, but showing marked improvement under treatment	
Marked vertigo	4, 30 per cent.
Severe headache	4, 30 per cent.
Mental Effects:	
Lowered memory and attention	2
More emotional	1
Depression	1
Results of Treatment:	
Improved under fibrolysin	6
Not improved under fibrolysin	1
Now under treatment	1
Not treated	5
Wassermann and Nonne tests, and cell count	Negative in all cases tested, 5

Case 3.—Dr. J. P. V., aged 57, a physician, married, came under observation, Jan. 26, 1916. His father was of a nervous temperament, and there was also some tuberculosis in the family. The patient has worked had, and is of a nervous temperament. He had "writer's cramp" some years ago; he had also "neuritis" at the right shoulder, and intercostal neuralgia. He wrote with the left hand for a time. The right hand has never been fully useful since. He had a spell of sudden unconsciousness twelve years ago, with a good deal of dizziness after that. He is subject to sinking or fainting spells on exposure to cold or fatigue.

About three or four years ago he began having trouble with his speech; he could not pronounce words clearly, and a tremor of the head developed. He noticed also increased difficulty in the use of the right hand, and some tremor on closely adapted movement. He had no trouble with his legs. There has been no dizziness of late. He had some cramplike pain in the foot a year ago. He has control of the bladder, and there is no change in the sexual function. Color and nutrition are fair. He has a halting, tripping difficulty in speech, and the tone is rather flat. He uses his lips peculiarly in speaking. There is no nystagmus, but fixation is not sustained when looking to the left. There is some rhythmic tremor of the head at times; the right hand also shows tremor on movement, slight but distinct. Arm and leg deep reflexes are negative. Epigastric and abdominal reflexes are much less on the right than the left. The cremaster is normal; there are no disturbances of cutaneous sensation, and no aralysis; there is some pyorrhea. The pulse is 76; pressure, 24 systolic, 90 diastolic. The heart sounds are clear. The urine is negative.

Case 4.—Mrs. O. F. K., aged 45, came under observation, Feb. 6, 1917, having been referred by Dr. G. W. Bass. The family was of a nervous temperament on the mother's side. The patient was frail as a child up to 8 years of age. She was not fond of school; she was in the eighth grade at the age of 19. She had no serious illness. There were three children, all normal. When 15 years old she had "water on the left knee" for a year. One morning, three years ago, she had a sense of confusion, became unconscious, remained so for three days, and was in a dreamy state for several weeks. She has never felt well since then, is dizzy all the time, her memory is poor, and she is absentminded, has little interest in things, is inclined to be gloomy and cry, and is in a constant state of worry. The bowels are regular, and she has full control of the bladder. There is a numb and weak feeling in the left leg that is increasing. She often staggers about the house. She has cramps in the left lower leg at night, and also at times in the hands, The urine has been slow in starting the past four months. The patient is well developed and well nourished and her color is good, but her expression is dull. The right pupil is slightly larger than the left, but both are small and react poorly to light, somewhat better to accommodation. The arm reflexes are all sharply exaggerated and equal. The face reflexes are negative. Speech is free. Fixation of globes is not good, but there is no actual nystagmus. There is quite marked intention tremor in both hands. Patellar response is markedly increased on the right, less so on the left. There is no clonus, but a distinct Babinski and Oppenheim reaction on both sides. Station is fair; there is some ataxia of gait and the step is short, favoring the left leg. There is slight dulling of pain and tactile and thermal sense over the right arm and leg. There is marked anesthesia and analgesia throughout the left leg. Epigastric and abdominal responses are absent on both sides to stroke. Epigastric response is present on both sides to tap, but is distinctly greater on the right.

Usually the subject is a young adult under 30, there being no predilection for sex.

In the present analysis one began with extreme head pain, one with sensory involvement alone, five with pure motor disturbance, two with combined sensorimotor trouble, one with dimness of vision, and three with an apoplectiform picture.

The progress of the individual case is strikingly variant and irregular. Areas of paresthesia suddenly develop, extend or remain stationary for indefinite periods and gradually diminish or disappear. They may occupy any site, may be monoparesthetic, paresthetic, or hemiparesthetic in distribution. They may or may not be accompanied by corresponding disturbances of motor function. The gait may be slightly or profoundly affected, mostly spastic or almost entirely ataxic, and of the cerebellar type, this being evidently due to plaques in the peduncles.

The reflex phenomena are striking and significant. While a simple quantitative increase may possibly be the only alteration noted, in practically all cases there are definite qualitative changes, with either an ankle clonus, or the great toe sign developed in the Babinski, Oppenheim or Gordon test, on one or both sides, or perhaps a clonus on one and a Babinski on the other. In one rare case of my group, all these reactions were found on both sides.

Case 5.—Olaf O., aged 26, single, a Dane, entered City Hospital, Jan. 19, 1915. The family history shows no significant factors. The patient had pneumonia at the age of 10. He came to this country at 15. He is a heavy smoker and has had gonorrhea twice.

Three years ago he noticed difficulty in walking. He had chills and cold sweats. This improved for a time, but then became much worse; he could not stand or walk; the right leg was completely paralyzed. He took mud baths for three months, improving somewhat. The bowels are constipated, but he has control of the bladder. He has a sharp pain in the abdomen at times. The lower legs are cold. The vision is hazy. He has had headache for three weeks. The patient is well developed and in good nutrition. His manner is nervous, speech hurried but with slight trip in it. The right pupil is slightly larger at times. There is a marked rhythmic, lateral nystagmus of quite wide amplitude; there is reaction to light and accommodation.

The arm reflexes are sharply increased and equal, and there is no intention, tremor. There is slight incoordination in the arms; very slight diminution in tactile sense in the hands; marked unsteadiness in gait and station, and a spastic element. The legs show overextension at the knees. The patellar responses are sharply exaggerated and equal. There is ankle clonus on both sides. The great toe sign is present on both sides in all three tests. Appreciation of touch, temperature and pain stimuli is markedly reduced over both legs. The cremaster is active and equal. The epigastric and abdominal reflexes are abolished on the right and present on the left. For a time the right leg was much weaker, then gradually improved. The Wassermann test of the blood was negative. All reactions of the spinal fluid were negative.

Intramuscular injection of fibrolysin was employed for about two months, with apparent improvement in the use of legs and in vision.

While, as has been stated before, the reflexes are commonly heightened, in an occasional rare case they may be abolished, as they were in Case 6.

By some writers the superficial reflex reactions are not considered of material importance, but variations in the epigastric and abdominal responses are highly significant. They will usually be found active on one side and diminished or lost on the other. This was true in ten of these patients.

Disturbances in sense perception are not usually considered as frequent as those in the motor sphere, but if both subjective and objective changes are included they are probably fully as common and possibly more so; and thermal hypesthesia may be more pronounced than the diminution in either tactile or pain sense, as in Case 13.

Case 7.—Mrs. E. J., aged 35 years, housewife, came under observation, May 14, 1917. She was seen in consultation with Dr. E. G. Warne, St. Paul. The family history was negative. The patient comes from a family of very large people, and she was always large for her age. She matured at the age of 11. When 14 she had trouble with dimness of vision, and had glasses fitted. She was told she had cataract. The vision gradually cleared entirely. She had no material illnesses as a child. She was married at the age of 18, had two children, the last fourteen years ago, and she had several abortions, the last eight years ago. When about 20, she had trouble in walking. From time to time she has had numbness in the extremities, worse in the right hand and left foot. Vision at times has been misty and then cleared; she thinks she sees better in the evening. She has sudden temporary increase in the difficulty in walking or the feeling of numbness. Several years ago she had an interval of severe headache; dizziness is constant. Fifteen years ago she had a large fibroid removed. Menstruation is growing gradually less. Last summer she had a faint feeling; everything grew black.

TABLE 2.—ANALYSIS OF CASES

Case No. and Age at Onset	Causative Factors (?)	Initial Symptom	Motor Disturbances	Sensory Disturbances	Speech	Eye Symptoms	Reflexes	Remission (spontaneous)	Serology	Trauma and Puerperium
1—15	Exposure to wet; tonsillitis	Paraparetic	Paraparetic; spastic ataxic gait	Numbness; slight dim. touch, temp. and pain; head pain	Dysarthric (slight)	Nystagmus, both vertical and lateral; inequality of pupils; dimness	Patellar sharp, right; Babinski, both; Oppenheim, left; abdominal diminished, right	Marked	Not taken	Marked recurrences with both trauma and puerperium
2—19	Measles at 3; anemia	Arms clumsy and shaky	Paraparetic; difficulty in writing	Numbness; (subj.); dizziness	Dysarthric	Nystagmus; dimness	Clonus, Babinski, Oppenheim, Gordon on one side	Marked	Not taken	Marked increase with puerperium
3—45	Overstrain (country doctor)	Apoplectiform	Monoparesis; tremor of head; intention tremor	Dizziness.........	Scanning	Poor fixation	All tendon responses negative, abdominal diminished on one side	Moderate	Not taken	
4—37	Constitutional frailty	Apoplectiform	Intention tremor; spastic-ataxic; weak detrusor	Numbness; marked dim. all sense perceptions left leg	......	Poor fixation; inequality of pupils	All sharp: Babinski and Oppenheim; abdominal diminished on left	....	Not taken	
5—23	Pneumonia at 10; gonorrhea	Difficulty in walking	Monoparesis; spastic-ataxic	Marked dim. touch, pain and temp. perceptions; head pain	Dysarthric (slight)	Nystagmus; dimness; inequality of pupils; diplopia	All sharp, clonus. Babinski, Oppenheim, abdominal absent on one side	Moderate	Not taken	
6—42	....	Extreme head pain	Intention tremor; gait, spastic-ataxic	Numb and prickly feeling; dizziness	Dysarthric flat tone	Nystagmus; diplopia; dimness of vision	Dull in arms, absent in legs, abdominal, absent on one side	Slight	Negative	
7—14	....	Dimness of vision	Paraparetic; spastic-ataxic	Numbness; dim. in heat percep.; slight astereognosis; dizziness; head pain	......	Nystagmus, vertical; inequality of pupils	Patellar sharp, Achilles absent, Babinski and Gordon left, Babinski and Oppenheim right	Marked	Negative	Faint feelings on exposure
8—15	Nervous temperament	Apoplectiform	Monoparetic; intention tremor; paretic gait	Numbness........	......	Marked nystagmus; inequality of pupils; diplopia	Clonus and Babinski on left	....	Negative	
9—69	Pyorrhea	Paraparetic	Diplegic; trophic wasting; spastic-ataxic, weak vesical sphincter	....	Dysarthric (slight)	Nystagmus	Patellar sharp; clonus and Babinski	Moderate	Not taken	Aggravated by trauma
10—23	Nervous temperament	Local area of numbness	Paraparetic; almost purely ataxic gait; weak vesical sphincter	....	......	Nystagmus	Pharyngeal absent; Babinski and Oppenheim on both sides; abdominal absent right	Marked	Negative	Recurrence with overstrain
11—27	Trauma two yrs. previous	Paraparetic	Intention tremor (slight); spastic-ataxic	Slight local paresthesia; slight astereognosis	Scanning	Marked nystagmus; inequality of pupils; dimness	All sharp, Babinski, Oppenheim, Gordon, both sides; abdominal abolished	....	Negative	
12—21	Nervous temperament	Weakness and numbness in legs	Intention tremor (slight); marked incoordination; spastic-ataxic	Numbness........	......	Slight nystagmus	Clonus, Babinski, Oppenheim, both sides; abdominal absent one side	Marked	Not taken	Faint feeling from any exposure to cold
13—25	Trauma two yrs. before	Monoparetic	Monoparetic; slight incoordination; weak detrusor	Numbness; slight dim. tactile, marked of thermal perception	Flat tone	Nystagmus; inequality of pupils	Patellar inc. on right, Oppenheim and Gordon on right	Marked	Not taken	Recurrence following trauma

She had another attack four weeks later which lasted several hours, although she was not entirely unconscious. She tires easily, and the difficulty in walking and the numbness are aggravated. There is no diplopia. She had tremor of the head for a time. She could not write last winter. She had her feet scalded and she did not know the water was hot. There was loss of control of bowel and bladder for a time last winter. Control is now partially restored. She is very large, and weighs 240 pounds; her color is good. The left pupil is large at times; both react. The jaw jerk is sharp; the teeth show much dental work, the arm reflexes are negative. There is no tremor of the hands. There is a marked vertical nystagmus on looking to the left, but slight when looking to the right, of rather wide amplitude and somewhat irregular. Patellar response is sharply overactive and equal. Achilles reflex in absent on the left and slight on the right. There is no clonus. A Babinski and Gordon response on the left and irritation of the skin on the dorsum of the foot produces extension of the great toe. There is a Babinski and Oppenheim response on the right, and there is extension of the great toe on irritation of the skin just above the ankle. There is slight incoordination in the hands. The patient has a spastic-ataxic gait, slight diminution in tactile and pain sense and marked loss of thermal sense; also slight astereognosis in the right hand. The pulse is 84; pressure, 138 systolic, 105 diastolic (radial).

Stereognosis may be occasionally affected. Difficulty in either holding or passing the urine, transitory or more continued, is not infrequent. More or less severe and persistent vertigo is rather common, severe headaches are not considered a frequent occurrence, but were noted in more than one fourth of these cases. Intellection is not materially compromised, but there may be slight reduction, and somewhat lowered power of memory on increased emotionality.

Ordinarily there is little difficulty in arriving at a positive diagnosis. The clinical combination is unique, presenting both cerebral and spinal symptoms pointing to multiple, widely separated foci. It is not important what these individual symptoms are, provided we have any one characteristic spinal and cerebral sign combined. It may be, for instance, a clear lateral or vertical nystagmus and motor disturbance in one leg, including qualitative disturbances in the deep reflexes, which constituted the picture in Case 8.

Case 8.—Miss Martha W., aged 19 years, was referred by Dr. M. J. Jensen, and came under observation, June 19, 1916. Her family history shows no important elements. Her health was good up to four years ago, when she had a "fainting spell." She had another two years ago and a third a few months ago.

About a month ago she noticed numb feelings in the left hand (the patient is left handed). She has had some diplopia at times. For several weeks she has noticed that she could not use the left leg naturally, dragging the foot. She has not noticed any trouble with speech. She has very little headache, but some dizziness. There is no trouble with the right nutrition are fair. He has a halting, tripping difficulty in speech, and the tone is rather flat. He uses his lips peculiarly in speaking. There is no nystagmus, but fixation is not sustained when looking to the left. There is some rhythmic tremor of the head at times; the right hand also shows tremor on movement, slight but distinct. Arm and leg deep reflexes are negative. Epigastric and abdominal reflexes are much less on the right than the left. The cremaster is normal; there are no disturbances of cutaneous sensation, and no paralysis; there is some pyorrhea. The pulse is 76; pressure, 124 systolic, 90 diastolic. The heart sounds are clear. The urine is negative.

Case 4.—Mrs. O. F. K., aged 45, came under observation, Feb. 6, 1917, having been referred by Dr. G. W. Bass. The family was of a nervous temperament on the mother's side. The patient was frail as a child up to 8 years of age. She was not fond of school; she was in the eighth grade at the age of 19. She had no serious illness. There were three children, all normal. When 15 years old she had "water on the left knee" for a year. One morning, three years ago, she had a sense of confusion, became unconscious, remained so for three days, and was in a dreamy state for several weeks. She has never felt well since then, is dizzy all the time, her memory is poor, and she is absentminded, has little interest in things, is inclined to be gloomy and cry, and is in a constant state of worry. The bowels are regular, and she has full control of the bladder. There is a numb and weak feeling in the left leg that is increasing. She often staggers about the house. She has cramps in the left lower leg at night, and also at times in the hands. The urine has been slow in starting the past four months. The patient is well developed and well nourished and her color is good, but her expression is dull. The right pupil is slightly larger than the left, but both are small and react poorly to light, somewhat better to accommodation. The arm reflexes are all sharply exaggerated and equal. The face reflexes are negative. Speech is free. Fixation of globes is not good, but there is no actual nystagmus. There is quite marked intention tremor in both hands. Patellar response is markedly increased on the right, less so on the left. There is no clonus, but a distinct Babinski and Oppenheim reaction on both sides. Station is fair; there is some ataxia of gait and the step is short, favoring the left leg. There is slight dulling of pain and tactile and thermal sense over the right arm and leg. There is marked anesthesia and analgesia throughout the left leg. Epigastric and abdominal responses are absent on both sides to stroke. Epigastric response is present on both sides to tap, but is distinctly greater on the right.

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Case 5.—Olaf O., aged 26, single, a Dane, entered City Hospital, Jan. 19, 1915. The family history shows no significant factors. The patient had pneumonia at the age of 10. He came to this country at 15. He is a heavy smoker and has had gonorrhea twice.

Three years ago he noticed difficulty in walking. He had chills and cold sweats. This improved for a time, but then became much worse; he could not stand or walk; the right leg was completely paralyzed. He took mud baths for three months, improving somewhat. The bowels are constipated, but he has control of the bladder. He has a sharp pain in the abdomen at times. The lower legs are cold. The vision is hazy. He has had headache for three weeks. The patient is well developed and in good nutrition. His manner is nervous, speech hurried but with slight trip in it. The right pupil is slightly larger at times. There is a marked rhythmic, lateral nystagmus of quite wide amplitude; there is reaction to light and accommodation.

The arm reflexes are sharply increased and equal, and there is no intention tremor. There is slight incoordination in the arms; very slight diminution in tactile sense in the hands; marked unsteadiness in gait and station, and a spastic element. The legs show overextension at the knees. The patellar responses are sharply exaggerated and equal. There is ankle clonus on both sides. The great toe sign is present on both sides in all three tests. Appreciation of touch, temperature and pain stimuli is markedly reduced over both legs. The cremaster is active and equal. The epigastric and abdominal reflexes are abolished on the right and present on the left. For a time the right leg was much weaker, then gradually improved. The Wassermann test of the blood was negative. All reactions of the spinal fluid were negative.

Intramuscular injection of fibrolysin was employed for about two months, with apparent improvement in the use of legs and in vision.

While, as has been stated before, the reflexes are commonly heightened, in an occasional rare case they may be abolished, as they were in Case 6.

By some writers the superficial reflex reactions are not considered of material importance, but variations in the epigastric and abdominal responses are highly significant. They will usually be found active on one side and diminished or lost on the other. This was true in ten of these patients.

Disturbances in sense perception are not usually considered as frequent as those in the motor sphere, but if both subjective and objective changes are included they are probably fully as common and possibly more so; and thermal hypesthesia may be more pronounced than the diminution in either tactile or pain sense, as in Case 13.

Case 7.—Mrs. E. J., aged 35 years, housewife, came under observation, May 14, 1917. She was seen in consultation with Dr. E. G. Warne, St. Paul. The family history was negative. The patient comes from a family of very large people, and she was always large for her age. She matured at the age of 11. When 14 she had trouble with dimness of vision, and had glasses fitted. She was told she had cataract. The vision gradually cleared entirely. She had no material illnesses as a child. She was married at the age of 18, had two children, the last fourteen years ago, and she had several abortions, the last eight years ago. When about 20, she had trouble in walking. From time to time she has had numbness in the extremities, worse in the right hand and left foot. Vision at times has been misty and then cleared; she thinks she sees better in the evening. She has sudden temporary increase in the difficulty in walking or the feeling of numbness. Several years ago she had an interval of severe headache; dizziness is constant. Fifteen years ago she had a large fibroid removed. Menstruation is growing gradually less. Last summer she had a faint feeling; everything grew black.

temperament and his mother "at times dragged a foot." The patient is the youngest of six children. His father was 54, the mother 44, when he was born. He is of a nervous temperament, but his health was good until about eight years ago, when, while working very hard, he began to notice a drop in general condition of health. Then numbness came on in the right arm and side of the body down to the groin; this lasted for five months. In 1912 a numb area developed in the left arm and side of the neck but cleared in about a month. In 1913 the feet and lower legs were numb for about a month and in 1914 he had several numb patches over the body. Some difficulty in walking accompanied this attack, which cleared up in about a month's time. He has been a heavy smoker and has used a good deal of coffee. The present attack came on about a month ago. He had been carrying more responsibility than usual before this occurred. Numbness developed, with difficulty in walking, the lower body and legs throughout being numb. He has a little difficulty in holding the urine. There is no venereal history.

The patient is well developed and in good nutrition, with a highly neurotic eye. He is prematurely gray. The pupils are negative. The field of vision is apparently normal. There is a distinct lateral nystagmus of moderate amplitude. Pharyngeal reflex is absent. The ears are large and prominent, the hands steady. The arm reflexes are negative, and the patellar response is overactive and equal. There is no clonus. Both great toes show a slight but distinct upward tendency to both Babinski and Oppenheim tests. The epigastric and abdominal reflex is absent on the right. There is a slight epigastric reflex on the left. There is no objective loss of sensation. The gait and station are good. A quite marked incertitude in gait developed shortly after the first examination, with only slight spastic elements. The urine is negative, and the blood and spinal fluid are negative.

Six ampules of fibrolysin were given, resulting in rapid improvement in gait, which became practically normal in a month; nystagmus was much diminished.

Disturbances in the gait, the pupil and the sensory sphere are the only possible points of remote resemblance to locomotor ataxia, those of sensation being the most similar. The gait is markedly different. While the pupils may vary in size in both conditions, in locomotor ataxia they are irregular in outline, and response to light is affected and the iris has lost its normal velvety softness of texture and has a tense flat look like a tightly drawn curtain, presented earlier in this context as a new sign in that disease. There is less excuse for confusing these two diseases in diagnosis than almost any other that can come into consideration, and yet the following classical Charcot syndrome was designated as tabes even by a neurologist:

Case 11.—Miss K., aged 35 years, came under observation, April 19, 1916, having been referred by Dr. A. Gullickson. There was nothing of note in the family history. The patient was well until 20 years old, when she was thrown out in a runaway and was unconscious for perhaps five minutes. There were no surface injuries, although she was slightly lame for a time. About two years later trouble began in the use of her legs. This has steadily increased down to the present time. Slight trouble in holding the urine began about five years ago. This difficulty has increased slightly. There has been no trouble with the bowel. There has been some peculiarity in sensation in the left thumb and forefinger for the past two years. She has had some difficulty in getting words at times. Her vision is somewhat dimmed. There is no vomiting, headache or dizziness, and no diplopia. Her memory is normal. Menstrual periods have been too frequent of late. She is gradually losing flesh, and is quite emotional and irritable.

The patient is poorly nourished, and her face is highly flushed. The pupils are moderately dilated, the right being distinctly larger than the left. Reactions are sluggish to both light and accommodation. There is marked nystagmus of moderate amplitude, lateral, and more toward the right. She has several devitalized teeth. The throat is negative. There is slight tremor of the left hand on closely adapted movement. Her handwriting is very irregular. There is slight diminution of sensation in the left thumb and forefinger, and slight astereognosis. The arm reflexes on the left are sharper than on the right. Patellar reaction is decidedly overactive, greater on the right. Clonus is nearly sustained on the left, and there is a Babinski, Oppenheim and Gordon response on both sides, more marked on the left. There is decided ataxia of station. The gait is spastic-ataxic. Abdominal and epigastric reflexes are absent on both sides to stroke, but slightly responsive on the right to tap. There is slight dulling of tactile sense over the legs. Pain perception is normal. There is distinct slurring and trip in speech, but not actually scanning. The pulse is 72; pressure, 122 systolic, 90 diastolic (radial). A Wassermann test was not made.

The patient is very emotional and irritable. There is an element of propulsion in the gait. She was under observation for six months, a total of about 30 ampules of fibrolysin being used, with distinct gain in general nutrition, control in walking and in strength.

The course of multiple sclerosis is one of great chronicity, extending over a period of many years. Symptoms develop, are added to, shift or remain stationary for indefinite periods, or recede and disappear spontaneously, to remain latent perhaps for years, only to again recur, sometimes with identical, sometimes with widely different manifestations. This remarkable characteristic makes conclusions on the effect of any medication very uncertain; but when we find prompt and distinct improvement beginning and continuing on the administration of any medication, it is fair to conclude that it exercises at least some beneficial influence over the process. In this series of thirteen patients five did not remain under observation; of the others one showed no improvement with intramuscular injection of fibrolysin, one has only begun treatment, and the remaining six all showed either moderate or decided improvement, one with rapid and practically complete disappearance of all symptoms. Whether further recurrences will be influenced at all is at present uncertain; and the presentation of this paper with its limited group of case reports has been prompted chiefly by a desire to stimulate interest in closer attention to the protean pictures presented by disseminating multiple sclerosis; its earlier and more frequent diagnosis, as well as a more critical study of its causes, and possibly better methods of treatment.

ABSTRACT OF DISCUSSION

Dr. A. L. Skoog, Kansas City, Mo.: The differential diagnosis of multiple sclerosis from cerebral syphilis is often difficult to make. There is a diffuse arteriosclerosis affecting the brain and spinal cord. The diffuse scleroses perhaps do not fall under the group of multiple sclerosis. It has been said that we need not consider syphilis as a cause of multiple sclerosis simply because the serologic tests give the sign. I agree heartily with this. When we consider the large number of persons afflicted with syphilis, it is not surprising that some of them develop multiple sclerosis. We have had illustrated the same fact with tumors of the brain. I wish to cite a case under my observation about one year. The man was doing interior decorating on a government building when he developed his first symptoms of multiple sclerosis. A number of volatile oils were used in this work. He was informed by physicians and believed that his trouble was caused by inhalation of these fumes. The other workers did not work as long hours as he did. The onset was rapid, making one think of acute multiple sclerosis. During the past year the disease has taken the ordinary course, and now he has all the classical symptoms. He is in a bedridden, helpless state. Serologic analyses are negative. Personally, I do not think the volatile oils had anything to do with causing the disease. I believe multiple sclerosis is caused by some teratologic defect which becomes evident at a selected development epoch.

Dr. E. E. Mayer, Pittsburgh: Believing, as I do, in the infectious origin of multiple sclerosis, Minneapolis must be a very unhealthy place. I am surprised at the large number of cases that Dr. Crafts has observed. Even at as high a percentage as is observed in institutions, namely, about 1 per cent. of all nervous diseases, his number averages high. We do not secure many necropsies in Pittsburgh. A consultant, I believe, in the early stages cannot often positively diagnose multiple sclerosis. The family physician rarely returns these patients for further study, and if they go to state institutions we lose track of them. My low number of multiple scleroses may be accounted for in that way. But the many multiple inflammatory myelo-encephalitic processes and the numerous cases of syphilitic meningo-encephalitis are not diagnosed by me as multiple sclerosis, though I know that later, if I saw them, I would perhaps make this diagnosis.

Dr. Charles R. Ball, St. Paul: In the United States we have been slow to recognize the protean symptomatology of multiple sclerosis, and Dr. Crafts' paper has called our attention sharply to this fact. Multiple sclerosis has an extensive symptomatology which is often much different from the classical description given in most textbooks. We must get, in general, a broader conception of this disease and then we will find that it is not at all an uncommon affection.

Dr. D. I. Wolfstein, Cincinnati: We do not see as many well developed cases as are shown in European clinics, but we do see cases rather frequently in which the diagnosis is justified. Long ago attention was directed to the so-called cases of "formes frustes," and most of the suspicious cases fit into this designation. Often there is difficulty in distinguishing between this disease and hysteria, but if one keeps a sharp lookout for organic signs, such as a Babinski sign or mild clonus, or slight rigidity, the proper diagnosis may be made. I have a case now which shows a marked astereognosis of the affected hand, and this without other involvement of sensation. I wish Dr. Crafts would give his experience on this point of astereognosis. Are there any contributions to the treatment? Is there any value in the silver nitrate method? I have relied on thiosinamin sodium salicylate (fibrolysin) and sodium cacodylate.

Dr. G. A. Moleen, Denver: The abundance of literature is an index of our ignorance in regard to this disease. In Colorado I have seen a number of cases, but not in proportion to the number mentioned in this paper. It, like other conditions, has an apparent tendency to run in groups. There is one point which was omitted in the paper and that is the frequent mistaking of this condition for hysteria. Risien Russell says that in this condition we make many mistakes, and he was often forced to revise his diagnosis of hysteria. The characteristic striking remissions after very grave symptoms are misleading. This would suggest hysteria, but is, after all, a characteristic of this disease. The character of the disease would lead one to believe that it is constant in type. The eye symptoms mentioned by Kennedy I have never seen. I have seen attenuation of the vessels and glistening appearance of the nerves, with some degenerative patches. Kennedy has seen a number of cases in which there was papilledema. I have thought that the idea that there was some improvement with thyroid was justified. I have had improvement in one case endure for eighteen months on thyroid extract. The patient still shows a slight degree of spasticity in his gait.

Dr. B. Sachs, New York: I am sure that now we are recognizing disseminated sclerosis here as frequently as they do in Europe. The early stages must be considered suspicious. The disease is a protean one and the onset varies in many cases. I think that formerly cases were largely classed as chronic myelitis and spastic paraplegia. There is a diffuse myelitic disturbance. Seventy-five per cent. of these cases are early disseminated sclerosis. The absence of abdominal reflexes is a characteristic sign. I must differ with Dr. Moleen. We recognize pallor of half the disk as a symptom of disseminated sclerosis, and a nystagmus confirms this. Stammering is a rare symptom. Intention tremor is less frequent than absence of abdominal reflexes. We will have to improve our diagnostic ability in this particular. The cause of the disease is puzzling. I do not know whether it is hereditary or due to deficiency of glandular secretion (though I hesitate about that), or that there is a toxic origin of some kind, or some basis of deficient development. As for the treatment, we have found no specific. I find a large number of youthful spastic paraplegias that are really early cases of disseminated sclerosis. We can treat the spasticity by massage, baths and electricity. Perhaps we can use sodium cacodylate and push it to the extreme. The disease has remarkable remissions and exacerbations.

Dr. Frank R. Starkey, Detroit: I have in my care at present a patient with multiple sclerosis with a peculiar onset. The patient, 34 years of age, at the age of 17 became lame in the right leg and was unable to walk without assistance. She went home and rested for an hour, the lameness disappeared and she went to a dance and danced. After three or four weeks the trouble returned in the right knee, particularly; there was, however, no pain. At first the condition would clear up after rest and return with fatigue. The condition grew gradually worse and she was confined to her room for weeks. She took osteopathic treatments and obtained relief. She married, and within ten days the lameness returned and affected both legs and the right arm and she is, at present, unable to stand or walk without assistance. From this description I concluded that the case was one of hysteria and was therefore greatly surprised on examining her to find that she was extremely spastic in both legs, the right arm and both hands. She had increased reflexes, including ankle clonus and the Babinski reflex. There was no intention tremor or scanning speech. There was, however, a slight nystagmus and absence of the abdominal reflexes. I took one of my colleagues to see her who made a diagnosis of lateral sclerosis, which was also made by others. I, however, believe the case to be one of disseminated sclerosis. She gave a distinct history of abscesses of the roots of the teeth at the time of the onset and more or less trouble of this kind since, and at present has a number of old roots in her mouth. I believe there is a definite relation between the tooth trouble and her nervous phenomena. The picture at the beginning, however, was that of hysteria, and now the signs of lateral sclerosis predominate.

Dr. Andrew H. Woods, Canton, China: It has been repeatedly pointed out during the past ten years that syphilis of the cerebrospinal system produces, at times, multiple, millet-sized sclerotic lesions which are in some cases with difficulty distinguished microscopically from the lesions of "disseminated sclerosis." The accompanying meningomyelitis in syphilitic disease is an important diagnostic point. There is, however, no reason to consider the syphilitic virus as the cause of "disseminated sclerosis." The distribution of the sclerotic lesions, both in these cases of syphilis and in ordinary "disseminated sclerosis," points to the blood lymph system as the avenue of approach of the causative agent. It almost certainly does not enter through the pia. The appearance of the pia-arachnoid in syphilitic cases is consistent with what we would expect from its protective function. The sections show round-cell infiltration, often intense. Inflammation may spread by contiguity to a thin segment immediately behind the membrane. The arterioles that enter the cord from the arteries of the pia are interfered with. The whole appearance is that the pia is keeping the irritant away from the underlying nervous tissues. The function of the cerebrospinal membranes and fluids is not nutritive. It is mechanical—lubricant and protective. The fluid is a hydraulic buffer for the cord which is suspended in it. The pia is not meant to absorb and transfer substance into the cord, but it is a barrier to keep things out. Hence, if organisms are acting within the tracts and gray matter of the cord and brain, we would antecedently expect that chemical agents injected into the intramembranous space would fail to penetrate the cord and act on those organisms.

Dr. E. D. Fisher, New York: The subject of the frequency of multiple sclerosis was taken up in the New York Neurological Society some years ago, and the number of cases reported was very small. After that, as Dr. Sachs said, we began to study the symptoms more carefully and found more cases, but I think that then some cases were included which were not multiple sclerosis. The differential diagnosis between multiple sclerosis and hysteria is often difficult to make. Many apparently hysterial cases turn out to be multiple sclerosis. In London, in 1913, at the International Congress, many cases were presented at the Hospital for Paralytics and Epileptics. I think it was asserted that it was one of the most common diseases of the nervous system. As to the etiology, it may be of toxic origin, a disseminated myelitis. This differs from a primary degenerative disease. When we come to examine conditions in the cord and brain we find degeneration, but the peculiar characteristic of the primary disease is that the degeneration does not descend, as in myelitis. Where we have a localized sclerosis it is permanent and there is no such thing as a cure. No treatment will affect the sclerosed tissue and no new formation is possible, so far as we know. All that we can do is to alleviate some of the symptoms. I should not place my diagnosis on any two symptoms. It is a general picture and cannot be diagnosed by one or two signs. The prognosis is unfavorable and the disease is incurable.

Dr. L. M. Crafts, Minneapolis: I think there is as much multiple sclerorsis in Pittsburgh as in any other city. Dr. Sachs says it is as fully recognized now in the United States as abroad. If he means by the United States, New York, possibly so. I was asked by Dr. Bramell why our observers were not reporting more multiple sclerosis. In Europe it is considered the most common form of organic nervous disease. It is a matter of closer observation. It is well not to make a diagnosis on one symptom alone, but with two characteristic symptoms, one referring to the cord and the other to the brain, one can make a diagnosis. In reference to the differential diagnosis from hysteria, that is at times difficult. One case I considered hysteria until I found Babinski's sign, which is never found in hysteria. One speaker mentioned astereognosis. I had two or three cases with astereognosis. In regard to the teeth and tonsils, there were a number of my patients with this coincidence. I had one case resembling amyotrophic sclerosis in a man of 69 who got out of his buggy after a long drive and found he could not walk. Dr. Fisher spoke of it as myelitis; it is agliosis. For treatment I have used thiosinamin sodium salicylate (fibrolysin), and there have been distinct remissions; but these may occur spontaneously. The case must be watched for long periods of time. The neurologist is the one who should be consulted. I think the Charcot picture should be revised. Scanning speech is not typical. There are many variations as typical as the Charcot type.

The First Infant Welfare Work.—In France, about twenty years ago, 1892, Dr. Budin stated a movement of paramount importance for France—I may say, for the world. He observed that physicians took care of the mother, but let the infant child take care of itself. The result was an infant mortality so great that between a man of 90 and a child of 1 day, the chance of living one week was in favor of the man of 90. In many parts of the country, out of two children, one was sure to die; in the more thickly populated industrial quarters in certain cities out of three children, two were sure to die. Dr. Budin thought it was necessary first to learn and secondly to teach; thus he came to establish his "Consultations for Nurslings," which have done wonders. Mothers come with their babies every week. The children are examined and the mothers are instructed how to rear their offspring to strong, healthy men and women, and produce citizens to enjoy a useful life. He especially taught that children were meant to be nursed by their own mothers, and that the use of the best cow's milk or of a most scientifically prepared mixture could not compare with the mother's milk.—*Jules Jusserand. Some Checks to Infant Mortality. Trans. American Association for Study and Prevention of Infant Mortality. First Annual Meeting, 1910, p. 34.*

NOTES ON THE STANDARDIZATION AND ADMINISTRATION OF ANTIMENINGOCOCCIC SERUM *

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Now that wide and repeated experience here and abroad with reliable preparations of the antimeningococcic serum in the treatment of epidemic meningitis has resulted in a consensus of opinion favorable to its value, it is time to take up seriously the question of providing federal standardization in order that the public may be protected from poor and worthless preparations.

Unfortunately, as the distressing English experience of 1915, later retrieved when supplies of potent serum became available, showed, the commercial producer of the serum cannot be left to determine his own method of manufacture and his own standard of potency.

There has been misconception also as to the practicability of standardization, which needs to be removed by a statement of the essential facts of the case.

Undoubtedly, our minds have been clouded and our action impeded by the notion, which is only slowly giving way, that the only therapeutically active serums are those which are antitoxic in the strict sense, while the other class of antibacterial serums stands on an insecure therapeutic foundation. In the face of the convincing data available relative to the effects of the antimeningococcic serum and the growing favorable testimony to the value of the antipneumococcic serum Type I, this prejudice is being overcome.

The essential obstacle in each case—that of the antimeningococcic and antipneumococcic serum — arises from the circumstance that neither the meningococcus nor the pneumococcus is a consistent species, both being separable into more or less distinct type groups. As regards the pneumococcus, the practical case is simple and the whole matter of standardization is reducible to a formula, since up to the present the serum Type I alone is therapeutically effective, and no serum should be accepted as up to the standard which does not contain given quantities of antibodies for Type I pneumococcus.

While the case is not quite so simple for the meningococcus, it is by no means so complex as to defy ready solution. In one respect, the therapeutic possibilities of the antimeningococcic serum are far wider than serums for pneumococcus, since it can be made effective against all the meningococci causing epidemic meningitis.

Fortunately for our purpose, 80 per cent. or more of all the cases of epidemic meningitis are caused by two type strains or groups of the meningococcus, regular or normal and parameningococcus, and nearly the remaining 20 per cent. by two more strains not quite so definitely marked off biologically as the former or intermediate meningococcus A and B.[1] Hence, a potent serum may be prepared with, say, the four type cultures, which, if of sufficient titer, may be accepted as standard.

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* From the Laboratories of the Rockefeller Institute for Medical Research.

[1] A comparative study might readily reveal that the four type groups here given correspond with the so-called Types I, II, III and IV of the English classification.

Any one familiar with the recent invaluable English experience which has been collected into a pamphlet issued by the British Medical Research Committee[2] will know that, by pursuing a course similar to the one just outlined, they have insured supplies of an efficient preparation of the antimeningococcic serum, whereas formerly, without this control, they were grievously disappointed in the action of the available product.

This procedure will, as stated, yield a valuable and reliable preparation. In following it, there is nothing to prevent a more conscientious or ambitious manufacturer improving further his particular brand of serum by adding to the selected type cultures examples of the variants from the types which are occasionally encountered. This practice should indeed be encouraged; but it should not permit any clouding of the essential issue, which is to produce a highly potent serum for the standard cultures of meningococcus.

It is my intention to define what would be a readily realizable and adequate standard of potency. But before doing this, I wish to describe a series of tests which were carried out very recently with commercial samples of the antimeningococcic serum and, coincidently, with three other samples prepared by departments of health and the Rockefeller Institute.

TESTS OF COMMERCIAL SERUMS

Several immunity reactions have been employed in testing the value of therapeutic serums. When applied to the antimeningococcic serum, they arrange themselves in the following order of specificity: (1) agglutination at 55 C.; (2) opsonization; (3) complement fixation; (4) anti-infectious power, and (5) antitoxic power. Gradually, agglutination of the type cultures of the meningococcus is displacing other and less indicative methods of standardization. Accurate clinical experience also is confirming this decision. We have made a series of observations, which extend now over two years, on the relation of agglutination to the therapeutic efficiency of the serum. Thus, we have tested the meningococci isolated from the cerebrospinal fluid against several so-called polyvalent samples of the serum; and we have noted that when the sample of serum failed to influence the course of the disease, agglutinating power was either absent or very low. Moreover, we have also noted that the replacement of the impotent preparation of serum with one carrying agglutinins for the culture in question would, as a rule, control the infection. A serum of proper standard should agglutinate the four type cultures mentioned in dilutions of from 1:400 to 1:1,000. The still more efficient serum may show agglutination for all the variants in dilution of from 1:200 to 1:500.

Five samples of antimeningococcic serum produced by the larger producers of biologic products were purchased in the open market. The dates for return on all the samples were 1918. Presumably, therefore, they were recent products. To them were added three other samples: two had been obtained not long before from departments of health, and the third was a recent sample of the Rockefeller Institute preparation. They were examined for physical properties and for agglutination against four type cultures. The results are given in the accompanying table. The dilutions of the serum were set up by letters so that

RESULTS OF AGGLUTINATION TESTS MADE WITH DIFFERENT ANTIMENINGOCOCCIC SERUMS*

Sample	Date for Return on Label	Origin	Appearance	Regular or Normal Meningococci														Parameningococcus								Intermediate Meningococci													
				Stock Culture No. 1								Stock Culture No. 7						Stock Culture No. 60								Stock Culture No. 10						Stock Culture No. 30							
				100	200	400	800	1600	3200	6400	Control	100	200	400	800	1600	Control	100	200	400	800	1600	3200	6400	Control	100	200	400	800	1600	Control	100	200	400	800	1600	3200	6400	Control
A	7/22/18	Commercial	Cloudy, amber colored	—	—	—	—	—	—	—	—	—	—	—	—	—	—	++	++	++	++	±	—	—	—	+	±	—	—	—	—	±	—	—	—	—	—	—	—
B	1/27/18	Noncommercial	Clear, straw colored	++	++	—	—	—	—	—	—	++	++	+	—	—	—	++	++	++	+	±	—	—	—	++	++	++	+	±	—	++	++	++	++	—	—	—	—
C	11/ 2/18	Commercial	Clear, straw colored	+	+	—	—	—	—	—	—	++	+	—	—	—	—	++	+	±	—	—	—	—	—	++	++	++	+	—	—	++	+	—	—	—	—	—	—
D	6/20/18	Commercial	Dark, opaque, thick consistence	+	—	—	—	—	—	—	—	++	+	—	—	—	—	++	++	—	—	—	—	—	—	++	++	++	+	±	—	++	—	—	—	—	—	—	—
E	12/ 7/18	Commercial	Slightly cloudy, straw colored	—	—	—	—	—	—	—	—	++	+	—	—	—	—	++	++	+	±	—	—	—	—	++	++	++	++	++	—	++	++	—	—	—	—	—	—
F	7/25/18	Commercial	Slightly cloudy, straw colored	++	+	—	—	—	—	—	—	++	++	+	±	—	—	++	++	—	—	—	—	—	—	++	++	++	++	++	—	++	++	+	—	—	—	—	—
G	—	Rockefeller Institute Noncommercial	Clear, amber colored	++	++	±	—	—	—	—	—	++	++	+	—	—	—	++	++	++	++	++	++	++	—	++	++	++	++	++	—	++	++	++	++	+	—	—	—
H	11/22/17	Noncommercial	Clear, straw colored	++	—	—	—	—	—	—	—	++	++	++	—	—	—	++	++	++	+	—	—	—	—	++	++	++	++	+	—	++	++	+	—	—	—	—	—

* The agglutinations were conducted at 55 C. over night by the microscopic method.

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[2] Bacteriological Studies in the Pathology and Preventive Control of Cerebrospinal Fever Among the Forces During 1915 and 1916, Special Report Series, No. 3, National Health Insurance, Medical Research Committee, London, 1917.

the worker carrying out the agglutination tests was not aware of the origin of the several samples.

Moreover, the physical properties of certain samples were such as to make their employment by intraspinal injection, to say the least, dangerous. To explain this point, the accompanying illustration was made.

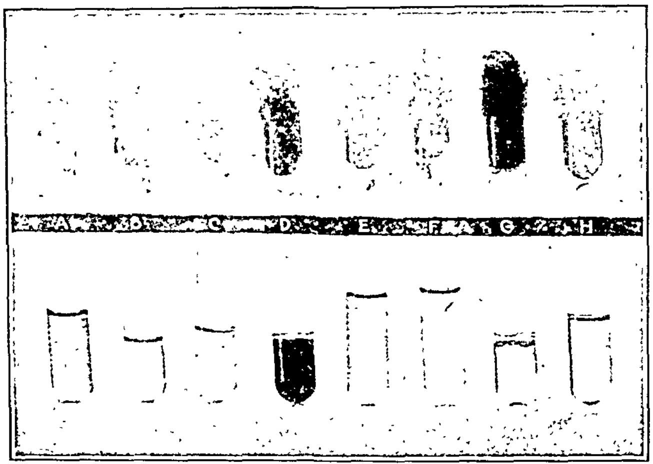
SUMMARY OF THE RESULTS OF THE TEST

Serum A (commercial) is slightly active against normal or regular culture No. 10 and sufficiently active against the parameningococcus culture No. 60. In other words, it is not sufficiently representative of the different type cultures to be suitable for therapeutic purposes. Moreover, the sample, while transparent, contains hemoglobin in excess and in an amount giving a red color to the serum. Severe reactions would follow its administration.

Serum B (board of health). The agglutinins are somewhat developed for the regular or normal meningococcus Nos. 1 and 7, well developed for the two irregular cultures Nos. 10 and 30, and for the parameningococcus. It is a useful product, but could be improved by the employment for immunization of larger quantities of the regular meningococcus cultures.

Serum C (commercial). Agglutinins are present in doubtful or small amounts for the regular meningococcus Nos. 1 and 7, and in somewhat larger quantity for the irregular culture No. 10 and the parameningococcus. This serum, which fulfils the requirements in physical condition, is of uniformly low titer and improperly balanced in type agglutinins. Its therapeutic efficiency is dubious.

Serum D (commercial). The physical properties of this sample (as shown in the illustration) condemn it wholly. It consists of a dark, opaque, rather heavy liquid, which did not clarify on centrifugalization for twenty minutes at 3,500 speed. The preparation would undoubtedly give rise to severe, possibly to dangerous, reaction. And yet the product is marketed in dark amber glass so that the physician would not detect the color and suspect the danger. In order to be fair, it should be stated that another sample obtained directly from the New York office of the firm was straw colored and clear; but there is no excuse for putting out the former preparation. Had the container been clear glass, the sample would have been rejected; hence until clear white glass is used, it is advisable to pour out or inject about 1 c.c. of the serum into a test tube or other receptacle before administering it. Moreover, the agglutinins are present in low quantity except for irregular type culture No. 10. Aside from the physical properties of the one specimen, the preparation is unsatisfactory for therapeutic purposes.



Specimens of antimeningococcic serums illustrating variations in the physical condition of commercial products.

Serum E (commercial). Agglutinins are present in adequate quantity for irregular culture No. 10 and for the parameningococcus culture. The quantity present for the regular meningococcus is minimal. The preparation is unsatisfactory for therapeutic purposes.

Serum F (commercial) represents the regular meningococcus and parameningococcus and the two irregular type cultures, but is improperly balanced. Taken as a whole, its agglutination titer is too long.

Serum G (Rockefeller Institute) represents adequately all the type cultures. A balanced serum which should fulfil therapeutic expectations.

Serum H (board of health) is a satisfactory product that should be therapeutically active.

COMMENT

A critical examination of the results of the tests exhibited in the table brings out points both interesting and practically of high importance.

The first thing that impresses one is the striking inferiority of the commercial as compared with the noncommercial products. There would appear to be very little excuse for this discrepancy. It is particularly true of the antimeningococcic serum that it is unsafe to reduce its preparation to mere routine. Second bleedings without further injections of cultures should not be made, and in no instance should the horses be bled for serum until a test bleeding has shown that agglutinins are present in adequate amount for the principal type cultures. The practice of mixing samples of serums of high and low titer to increase the volume collectable should never be practiced.

There is nothing involved in the preparation of a satisfactory serum that cannot be mastered in a properly organized commercial laboratory. But knowledge of the subject, conscientiousness and vigilance are demanded to obtain a product that will fulfil reasonable standard conditions and be therapeutically effective. It is to be trusted that merely by pointing out present deficiencies, rectification will be made; and it may also be hoped that the constituted federal authorities will establish and enforce a standard which is readily attainable and secure.

There is one point of technical interest in the table. Comparison of the agglutinability of regular or normal cultures Nos. 1 and 3 shows that one is more readily agglutinable than the other. This is a familiar phenomenon and one recognized in respect to many bacterial species. Its practical import in this connection is to the effect that in controlling the agglutination titer, reliance is not to be placed merely on a highly agglutinable culture.

There is no difficulty involved in this procedure, since it will practically never happen, and indeed it should not be permitted to conduct the immunization with a single regular or a single parameningococcus culture. Several of each, together with the representatives of the intermediate types, should properly be employed for injection.

It will be sufficient and a great gain to have progressed so far. As already indicated, a still more perfect serum product can be turned out by paying constant attention to the rarer variants and introducing them into the scheme of immunization, controlling their effects also by agglutination tests. But this refinement is one not to be introduced into the plan of standardization.

STANDARDIZATION

The next question relates to a practical standard for the serum. It should include two requirements. The first should define the physical qualities of the product which are acceptable. This definition should

Any one familiar with the recent invaluable English experience which has been collected into a pamphlet issued by the British Medical Research Committee[2] will know that, by pursuing a course similar to the one just outlined, they have insured supplies of an efficient preparation of the antimeningococcic serum, whereas formerly, without this control, they were grievously disappointed in the action of the available product.

This procedure will, as stated, yield a valuable and reliable preparation. In following it, there is nothing to prevent a more conscientious or ambitious manufacturer improving further his particular brand of serum by adding to the selected type cultures examples of the variants from the types which are occasionally encountered. This practice should indeed be encouraged; but it should not permit any clouding of the essential issue, which is to produce a highly potent serum for the standard cultures of meningococcus.

It is my intention to define what would be a readily realizable and adequate standard of potency. But before doing this, I wish to describe a series of tests which were carried out very recently with commercial samples of the antimeningococcic serum and, coincidently, with three other samples prepared by departments of health and the Rockefeller Institute.

TESTS OF COMMERCIAL SERUMS

Several immunity reactions have been employed in testing the value of therapeutic serums. When applied to the antimeningococcic serum, they arrange themselves in the following order of specificity: (1) agglutination at 55 C.; (2) opsonization; (3) complement fixation; (4) anti-infectious power, and (5) antitoxic power. Gradually, agglutination of the type cultures of the meningococcus is displacing other and less indicative methods of standardization. Accurate clinical experience also is confirming this decision. We have made a series of observations, which extend now over two years, on the relation of agglutination to the therapeutic efficiency of the serum. Thus, we have tested the meningococci isolated from the cerebr spinal fluid against several so-called polyvalent s ples of the serum; and we have noted that wher sample of serum failed to influence the course disease, agglutinating power was either absent low. Moreover, we have also noted that th ment of the impotent preparation of ser carrying agglutinins for the culture in q as a rule, control the infection. A er standard should agglutinate the cultures mentioned in dilutions of fro 00 to 1:1,000. The still more efficient ser show agglutination for all the variants of from 1:200 to 1:500.

Five samp ococcic serum produced by the ducers of biologic products were purchased in the open market. The dates for return on all the samples were 1918. Presumably, therefore, they were recent products. To them were added three other samples: two had been obtained not long before from departments of health, and the third was a recent sample of the Rockefeller Institute preparation. They were examined for physical properties and for agglutination against four type cultures. The results are given in the accompanying table. The dilutions of the erum were set up by letters so that

RESULTS OF A ITH DIFFERENT ANTIMENINGOCOCCIC SERUMS*

Sample	Date for Return on Label	Origin	Appearance	Regular																			
				Stock Culture No. 1																			
				100	200	400	800	1600	3200	6400	Control												
A	7/22/18	Commercial	Cloudy, amber colored	–	–	–	–	–	–	–	–	–	–										
B	1/27/18	Noncommercial	Clear, straw colored	++	++	–	–	–	–	–	–	++	++	+	–								
C	11/ 2/18	Commercial	Clear, straw colored	+	+	–	–	–	–	–	–	++	+	–	–	–	–						
	5/20/18	Commercial	Dark, opaque, thick consistence	+	–	–	–	–	–	–	–	++	+	–	–	–	–	++					
			Slightly cloudy, straw colored	–	–	–	–	–	–	–	–	++	+	–	–	–	–	++	++	+			
			ightly cloudy, w colored	++	+	–	–	–	–	–	–	++	++	+	±	–	–	++	++	–	–	–	–
			amber	++	++	±	–	–	–	–	–	++	++	+	–	–	–	++	++				
				++	–	–	–	–	–	–	–	++	++	++	–	–	–	++	++				

Intermediate Meningococci

* y the microscopic method.

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2. Bacteriological Studies in the Pathology and Preventive Control of Cerebrospinal Fever Among the Forces During 1915 and 1916, Special Report Series, No. 3, National Health Insurance, Medical Research Committee, London, 1917.

But Hans Bode[1] wisely remarks, "It is very important that the eye shall rest on a substantial support and that the oral and nasal cavities shall be separated from one another."

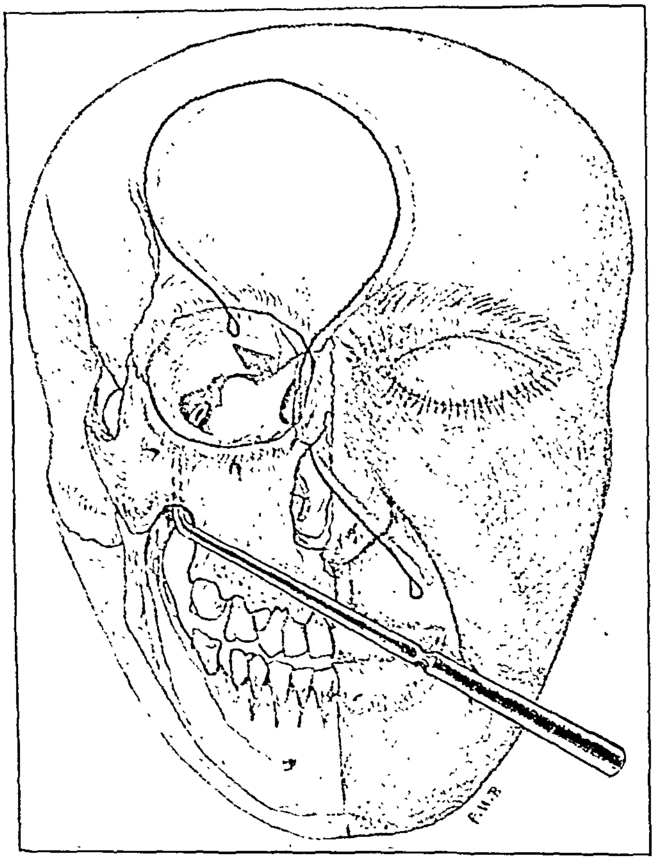

Fig. 2.—The saw carried across the orbit to make its exit through the sphenomaxillary tissue into the zygomatic fossa.

As early as 1859, Langenbeck preserved the periosteum of the orbit, and Bode tells us that his literary studies reveal the fact that Heine, Jacobs, Israel, Peyrat, Jallaguier, Koenig and Kuester have operated in this way. Koenig, Jr.,[2] in 1900, provided support for the eye by splitting from the outer part of the temporal muscle a flap one and a half finger-breadths long which contained the coronoid process and the anterior edge of the submaxillary border, together with the muscle insertions. This substantial flap he applied below the globe in order to supply a firm base of resistance where the bone had been removed. Riese obtained a good result with the method.

Another ingenious substitute for the lost support was provided by Schoenstaedt,[3] who used the transplanted middle turbinate as a flap.

Bode remarks that, since most of the operations of resection of the superior maxilla are undertaken for the extirpation of malignant growths, it is frequently not feasible to leave the periosteum. With this statement I am entirely in harmony. Kuhn,[4] who worked with the advice of Rehn and who used the material of the latter's clinic, strongly recommends more radical operations than have been, as a rule, performed.

I have been appalled, when first viewing the cavity left after resection, at the inroads made by malignant disease in the structures contiguous to the part removed. But I can substantiate the statements of Kuhn that much can be done to prevent recurrence by extensive removal of invaded tissues about the base of the skull, the soft palate and the neighboring accessory cavities.

It is with the conflicting necessities in mind—on the one hand that the globe shall be substantially supported, and on the other hand that the malignant disease shall be thoroughly extirpated—that this paper is presented. Yet it is to be remembered that there are not a few cases of superior maxillary cancer which begin at points remote from the orbit, and that some resections are made for nonmalignant disease.

Since the floor of the orbit is very thin and the lower border of the orbit is not massive, the retention of this tissue may frequently be practicable with the aid of the method to be presently described.

Curiously enough, but few advances have been made in the actual technic of these resections in many years. Kuhn's[5] anesthesia by tracheal tubage and preliminary ligation of the external carotid artery are most desirable advances in management.

There are many incisions from which to choose in laying bare the structures to be removed. Any incision through the soft parts may be used. I prefer the one which vertically divides the upper lip in the median line, passes around the ala of the nose, runs then toward the inner canthus of the eye, and, before reaching that point, curves along the lower orbital edge to the end rather far out toward or on the malar bone. This flap is first turned out and held wrapped in gauze. The hard [illegible] soft palates are divided in

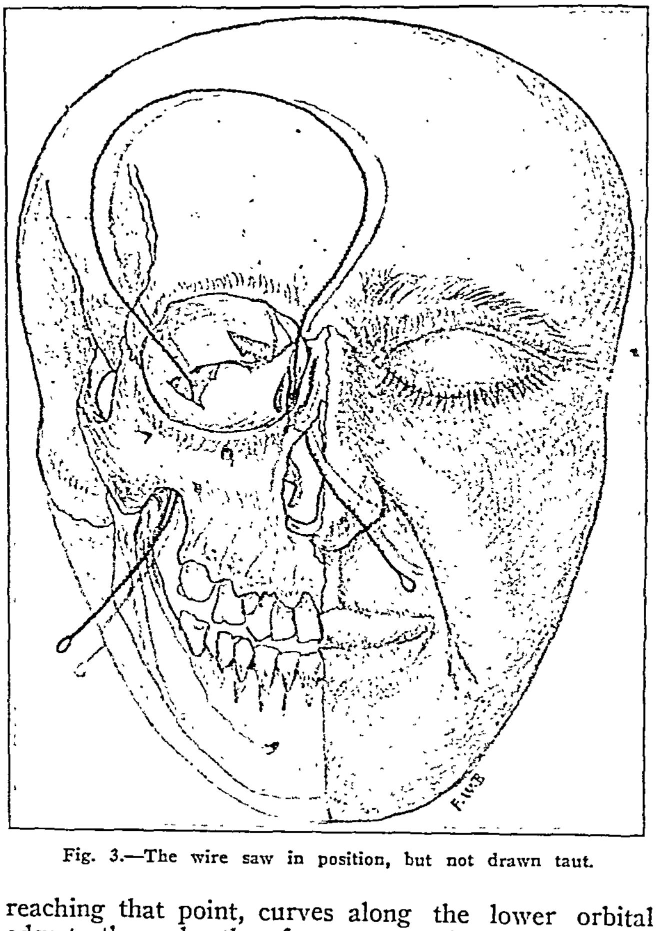

Fig. 3.—The wire saw in position, but not drawn taut.

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[1] Bode, Hans: Beitr. z. klin. Chir. (Bruns'), 74.
[2] Koenig, F., Jr.: Arch. f. klin. Chir., 61, No. 3.
[3] Schoenstaedt: Ztschr. f. ärztl. Fortbild., 1908, No. 14.
[4] Kuhn, F.: Zentralbl. f. Chir., 1913.
[5] Kuhn, F.: Zentralbl.

the usual way, with the chisel or with the Gigli saw.

Then the separation of the floor and the margin of the orbit from the body of the bone is effected as follows:

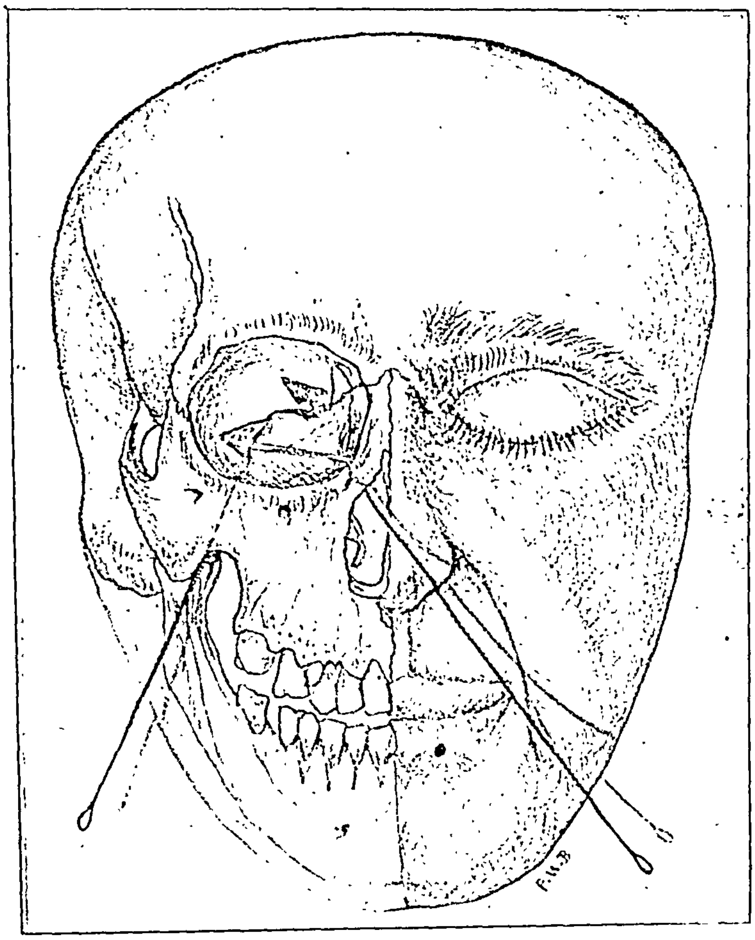

Fig. 4.—The approximate line of the saw-cut.

With a spatulous retractor, the contents of the orbit, including the periosteum, are held up, after the soft parts have been separated carefully from the bony edge and floor of the orbit. Now an ordinary grooved director is bent into a large hook and passed into the orbital cavity. With its point the anterior part of the sphenomaxillary fissure is found and the point is passed out into the zygomatic fossa, where it can be first felt by the finger-tip and then caught in a heavy silk loop. Withdrawal of the instrument brings with it the loop by the aid of which the end of a light, and therefore easily flexible, Gigli saw is carried through.

Next the grooved director is passed from within the orbit toward the median side, to the lacrimal groove and, with slight pressure, caused to perforate the thin bone and enter the nasal cavity. By being pushed further on, its point may be made to emerge around the bony margin of the nasal cavity. There it is again grasped by a loop of heavy silk, which is withdrawn as before through the wound below the globe. This loop of silk, removed from the grooved director, grasps the loop of the Gigli saw and carries it across the floor of the orbit and out through the nose.

This gives us a wire saw passing under the malar bone to the anterior part of the sphenomaxillary fissure, thence traversing the cavity of the orbit to the lacrimal groove, entering the nose through a perforation of the shell-like bone and emerging from the bony nasal framework.

The operator is now to attach the handles of the saw, and make his cut with the usual precautions of keeping the saw at work as nearly in a straight line as possible, and making the excursion of the handles as great as he can, in order to diminish to the utmost the danger of breaking the saw.

It will be seen that this maneuver accomplishes at once three of the classical steps of the operation: It divides the malar bone, separates the superior maxilla from its orbital connections, and transects the nasal process of the upper-jaw bone.

The remainder of the operation is conducted in the way described in the textbooks of surgery.

The drawings, made by Dr. F. W. Beilstein, show the steps of the maneuver in reverse order.

I have had one opportunity to carry out this procedure in the case of a man, aged 75, suffering from carcinoma of the superior maxilla, the disease beginning in the antrum of Highmore just above the left canine tooth. After preliminary extirpation of the regional glands in the neck and ligation of the external carotid artery, the usual flap was made and the procedure which has been described was carried out.

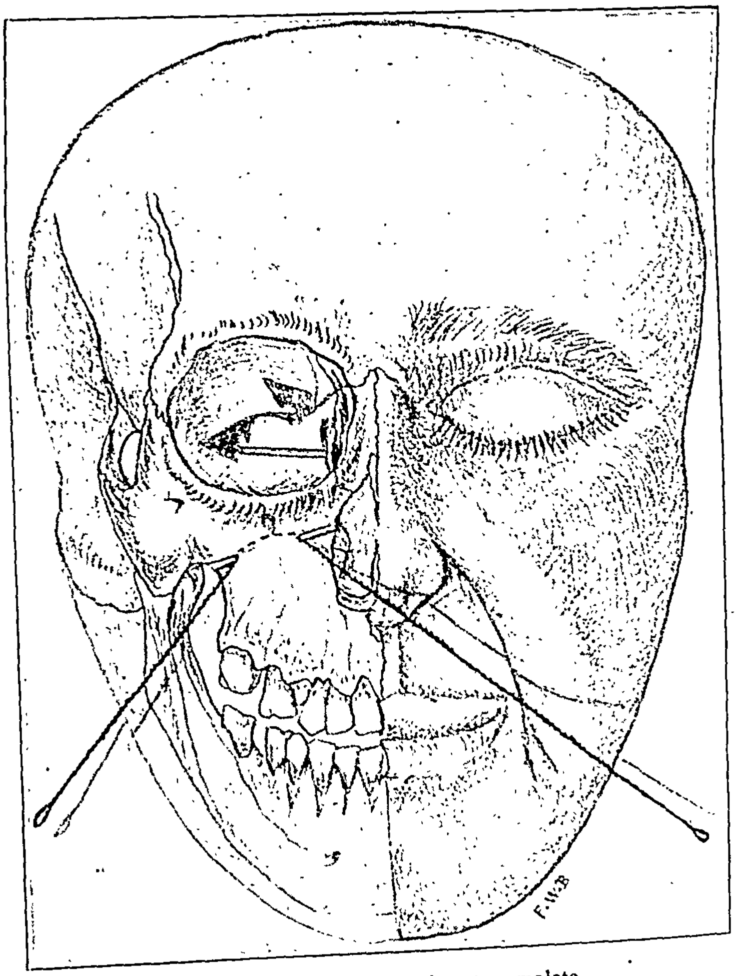

Fig. 5.—The saw-cut almost complete.

This experience taught that the grooved director chosen should be large and easily bent to any curve, and that the silk should be braided and very heavy to avoid breaking. No difficulty was experienced in raising the contents of the orbit and working beneath them. Sharp bleeding occurred when instrumentation was carried out through the nose. But this ceased spontaneously after a few minutes. The total amount of blood lost was not great. With the greatest regret it must be recorded that the patient died on the table before the sutures had been applied, but after the extirpation had been completed. The pulse continued beating at the wrist long after respiration had ceased, making it evident that ether poisoning was the cause of death. The feasibility and practicability of the operation were proved.

I recommend this modification of the usual procedure, when the floor of the orbit has not been invaded by disease, in order that the globe of the eye shall retain its full support, that the palpebral muscles shall have their attachments unimpaired, and that the disfigurement of the face by collapse shall be maintained at the minimum of necessity.

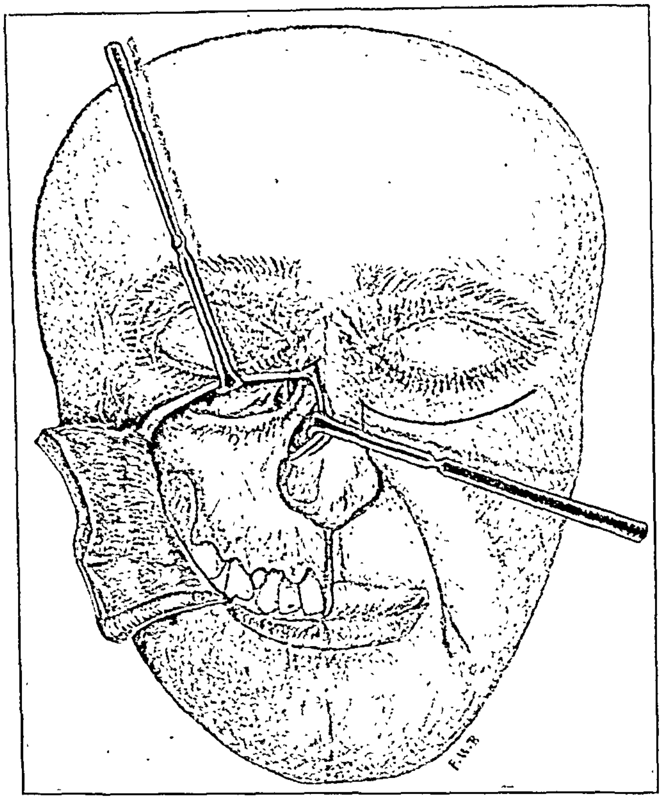

Fig. 6.—The exposure of the orbital floor and the entrance to the nose.

31 North State Street.

FRACTURES *

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In presenting this paper I cannot include all fractures, nor all of the details of any one fracture. I have selected certain conventional methods usually employed in every day practice, and I shall attempt to show that those methods are defective, and with each defect I shall submit my reasons for calling them defective, in each incident supplying what I consider a correction of the defective method. In other words, I believe there are sound logical reasons that explain bad results in treating fractures, and I also believe that better and more consistent results will follow better methods. The better methods, at least, are logical, they are consistent with the unalterable laws of nature, and they are approved by physicists and mechanical engineers.

By directing my first attack on the popular use of the weight and pulley in treating broken femurs, I shall bring to light the absurdity involved in at least one conventional method. However, if any one can defend this traditional usage, we shall all be glad to hear from him.

Back in the dark ages and probably before that time, and at the present time, bone setters searched for a consistent force to hold broken bones in a constant normal position. Hence they selected the constant force of gravity, knowing that bones would unite in the position in which they were held. They did not stop to consider that they were using the force of gravity, first, on the patient's body, where it acted as a fixation force, and secondly, on his leg, where it acted as an active kinetic force to oppose the most varied of all opposing influences which are to be found in the varied and irregular contractions of muscle tissue. Muscle tissue, if prodded with a sharp piece of bone, may exhibit spastic contractions, a tremor, relaxation or irregular contractions, all of which are to be opposed and balanced between the active force of gravity applied through the weight and pulley, and the fixation force of gravity applied to the body of the patient as it holds him down on his bed.

It is a difficult matter to convince any physicist that there is any balance or constancy in a formula that uses gravity as a fixation force on one end, and the active and acting force of gravity on the other end, while between the two there is present the unconstant and varying opposition of muscle contractures. Hence, in defending the use of the weight and pulley, I propose not to drift into a dissertation on the wonderful results following its employment, but rather to adhere to the fixed basic mechanical principle involved. Those wonderful results obtained can be logically explained and obtained without the weight and pulley. What we are really striving for is the hope of putting our specialty on an unassailable basis, at least from a mechanical point of view, and I desire to see eliminated all possible guesswork and bunglesome misuse of mechanical principles in this age of sound mechanics. If I am wrong in the hope or in my mechanical claims, we should all know it.

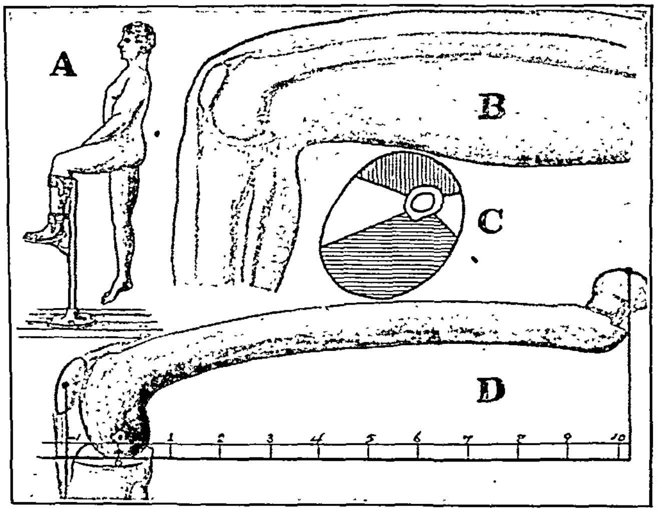

Fig. 1.—Mechanical principles involved in correcting a fracture of the femur: *A*, the powerful leverage of the femur in lifting the body; *B*, thigh muscles which cause direct traction; *C*, cross-section of the thigh illustrating groups of muscles concerned in reducing fracture of femur; *D*, the femur pictured as a scale beam.

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* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

Believing that there is no constancy, balance or logic in the principle of the weight and pulley, I will, before suggesting some substitute, take up one more absurd item in regard to the amount of the weight used with the pulley.

Figure 1 *A* represents a young man with his leg fastened securely to an iron frame. Without unusual effort he lifts the entire weight of his body directly from the floor. Suppose he weighs 225 or 250 pounds; then, while lifted clear of the floor, the only part of his body not lifted by the extensor muscle would be his leg and foot which rest on the steel frames. In other words, the rectus muscle through the agency of the femur as a lever is lifting a total of 200 pounds.

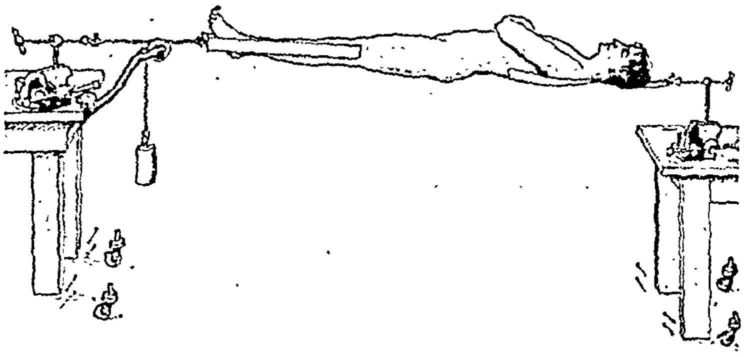

Fig. 3.—The mechanical difference between fixation energy and the weight and pulley. Fixation of support is secured by nailing the two tables to the floor instead of having them mobile on the casters, and thus the patient's body may be fixed as desired.

Figure 1 *D* represents the femur laid off as a scale beam; — 1 represents the length beyond the fulcrum *O*, while more than 10 units extend back to the long arm of the lever. Thus when he lifts his body, 10 × 200 pounds represents the strain or traction of the rectus muscle. I believe no one could tolerate the traction of 1 ton during the time of bone union.

In Figure 1 *C* it will be noted that the cross-section of the thigh at point *B* represents the total amount of the thigh muscles capable of making direct traction. The total traction released for activity in the event of a fractured femur would amount to several tons. It will be observed that the segment in the cross-section indicated by vertical lines represents the rectus. The lateral unstriated segments plus the lower, laterally striated segments exceed the rectus by five or six to one. This being the case, what special or particular function would a 10, or 50, or 100 pound weight perform in the event that the patient sneezed or contracted his thigh muscles, or during a spasmodic contraction while sleeping or dreaming? We all know that some muscles tire out and others never seem to offer much resistance. We also know the spastic type of muscles that resist, such as a finger in writers' cramp.

If the formula or principle of the weight and pulley is wrong, and if the weight is insignificant, then it behooves us to employ correct mechanical principles. The idea is constant normal position. We must use fixation energy for fixation purposes.

Figure 3 represents the mechanical difference between fixation energy and the weight and pulley. The weight and pulley would allow the body of the patient to sag. The same is true if the traction screws were employed, provided the two tables were mounted on rollers. But, if fixation energy should be applied (by first nailing the tables in place on the floor), then the traction screws would drag the patient's body to a straight horizontal line like a tight rope, if such unpardonable traction were used. By placing the patient in bed the traction screws merely guarantee a fixed distance between themselves, any part of which fixed distance may be occupied by the patient. If steel pins above and below the fracture are held at a fixed distance apart, they serve as fixation energy. A Lane plate serves as fixation energy. If the square ends of bone rest against each other, or if the bony spicules and their retaining notches rest against each other, there is fixation energy. But, if the patient disturbs such contact by using the bed pan, or by coughing or other commotion, then the bones are apt to be displaced and must be reduced to opposing position again. It is easy to understand how a good result might be obtained with the projecting spicules and notches of bone, even if a trifling weight was or was not employed. If the projecting spicules of bones caught and hung in muscle tissue, a fair result might occur in spite of a trifling weight and pulley.

In regard to the reduction of the shaft of the femur, there are cases in which screw traction will draw the fragments down past each other and permit the ragged ends of bone to come into their proper places. There are other cases, and plenty of them, in which the hamstrings and gastrocnemius and soleus muscles prevent reduction, provided the knee joint is extended.

Figure 4 *A* represents the knee flexed and relaxed, while *B* represents the knee extended with the posterior muscles tense. Any one who will extend the knee joint will find the hamstrings tight. They will surely be loose if the knee joint is flexed. Now the so-called transverse fractures are not like the sawed edges of a bone. If they were, the bones would go into place with the knee extended. But the transverse fracture is transverse roughly with bony spicules and notches left. Hence, in order to get the bones in line, the muscles must provide the requisite length for the rough areas to pass each other. But if the muscles are tight, when the knee is extended, they will not stretch enough to permit the rough ends to pass each other; consequently, the thigh must be muscularly unlocked by flexing the knee. Under knee flexion the bones easily go into place and, in these cases, will lock in place if the knee joint is again extended. This

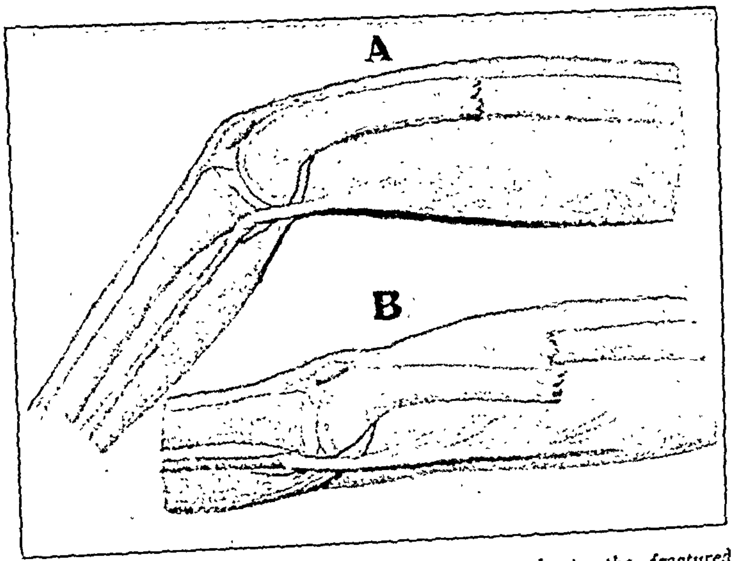

Fig. 4.—Unlocking the thigh so as to approximate the fractured ends: *A*, the knee joint flexed and muscles relaxed with bone fragments in perfect apposition; *B*, the leg extended and the fragments displaced.

matter of unlocking the thigh is so helpful that it is strange it could have escaped mention in our textbooks.

There is another item involving the use or misuse of good mechanics that should be mentioned. In the treatment of hip joint disease and in manipulation of certain fractures and dislocations, a line of traction parallel with the neck of the femur is sought. It is regularly attempted, as shown in Figure 5 *E*. Adhesive plasters, *B B*, on the leg have traction applied to them, while a band, *A*, is passed around the thigh and is pulled laterally. The composite result of the traction on *A* and *B* is supposed to result in a downward and outward traction in line with or parallel to the neck of the femur pointing from the acetabulum to *C*. The actual result, however, is almost directly at right angles, as indicated by the arrow pointing toward *D*.

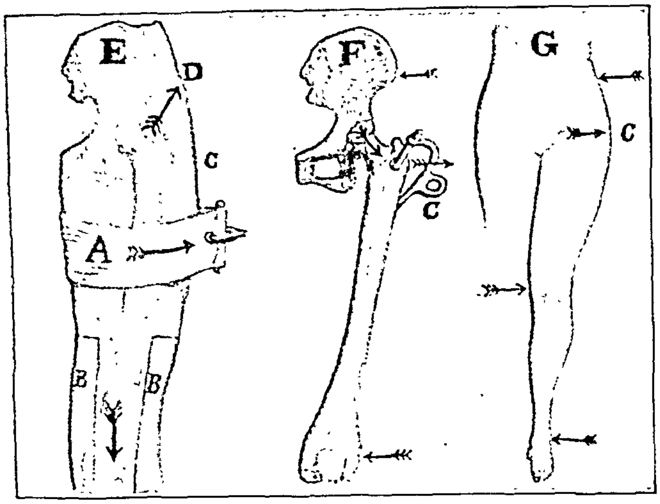

Fig. 5.—Traction to be applied in a line parallel with the neck of the femur: *A*, band applying lateral traction; *B*, adhesive strips making downward and outward traction in line with the neck of the femur pointing from the acetabulum to *C*; arrow pointing to *D*, actual result of such traction; *F*, proper position maintained by downward and lateral traction as indicated by arrows; *G*, points of pressure at which desired traction is secured.

The desired traction can be accomplished by following the unusual suggestion indicated in Figure 5 *F*, or to a limited degree by following the lines of pressure indicated by the arrows in *G*.

Figure 6 indicates one of the important triangles of the thigh in regard to which I wrote quite extensively twenty years ago. Two sides of the triangle are bone, while the third is muscle. If one side or one angle of a triangle is changed, the entire triangle is altered. Thus, if the side *A–C* is bent inward, the rest of the triangle must change. It does change, and as the femur is dislocated or fractured and free to move and the rest of the triangle is intact, the shaft or line *C–B* will travel upward or outward or in the two directions simultaneously.

Figure 7 is interesting in showing how a little pressure on the gracilis and adductors will become a tremendous upward pressure. If in *B* there is a 1,000 pound weight suspended by a rope, a very slight pressure at the middle of the rope will bend it, and if bent at all the weight has been lifted, although it may have been lifted only a fraction of an inch; yet it is true that 1,000 pounds has been lifted.

C represents the same state of affairs, except that the 1,000 pounds are secured to the top of a rod, while the rope is secured to the bottom of the rod. A pressure of a few pounds, or even a few ounces, against the middle of the rope will produce a pressure of a thousand pounds upward. This illustrates how we may create tremendous destructive pressure in the head of the femur and acetabulum by applying lateral pressure or traction to the gracilis or adductor muscles.

D represents, in all fairness, the increased pressure required to lift the same weight by applying more pressure or traction when the rope makes an angle of about 90 degrees. But the gracilis and the adductors make no such angle.

Figure 8 represents various positions employed in using the weight and pulley method.

In considering the basic mechanical principles appropriate to the treatment of fractured femurs, the ingenuity of the physician will be greatly improved if he does not consider this or that transverse or spiral or compound complicated fracture, but pictures constantly in his mind how he would treat a patient who had the middle third of the shaft entirely shattered and disconnected. By keeping this picture in mind, the physician will be stimulated to consider basic principles. If they are appropriate to a shattered femur they might be appropriate to a more simple form of fracture, since after all the thigh is merely an eccentric muscle tube with a bone filling its lumen. Of course a shattered or simple fracture of the neck of the femur are treated alike, as fractures of the neck of the femur are the easiest of all fractures to treat without deformity or shortness. The rules of fixation energy for fixation purposes are borne out here as elsewhere, and I know of no case of nonunion or "ligamentous union" which is genuinely nonunion to have resulted from this method of treatment at any age. In very old people of 80 or 90 years the bones unite. These patients may die with or without any treatment, but I believe their chances are better if no analgesic or any anesthetic is used at any time during the period between accident and recovery, and there is no occasion for using anesthesia or analgesics, as the treatment is not painful nor pain-inflicting, but is absolutely comforting from the moment it is begun. This, of course, is a statement to be substantiated by the physician's own patients when this method is adopted. The simplicity of the method is the feature most difficult of comprehension to the average practi-

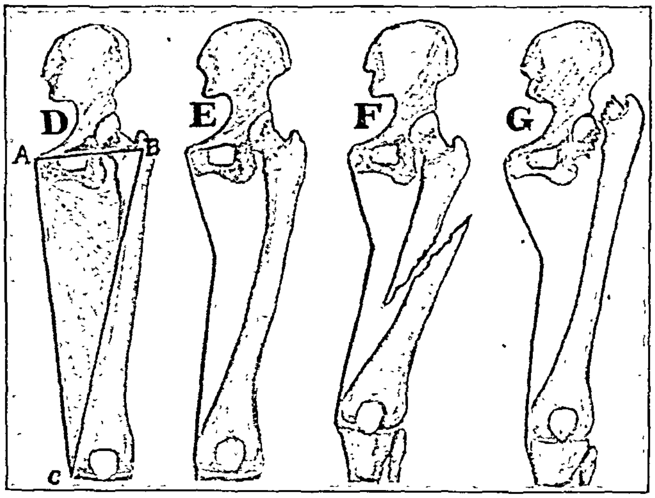

Fig. 6.—Triangles, two sides bone and one side muscle; if line *A-C* (muscle side) is altered, bone shaft *C-B* will travel upward or outward, as shown in *E*, *F* and *G*.

tioner who employs it. An ordinary army stretcher with a traction screw or strap at each end and a hole in the canvas for the bed pan service is a simple, direct and efficient fracture splint. But the details are trivial; the essential features are the selection of appropriate mechanical principles.

Allied to fractures of the femur are fractures of the humerus. Here the principle of fixation energy for fixation purposes is equally essential. Instead of using the tuberosity of the ischium as a superior fixation point, we use the muscles in front and behind the axillary space protecting the blood vessels and nerves from pressure. The inferior fixation area is the angle pad anterior to the elbow resting down on the forearm and back against the arm.

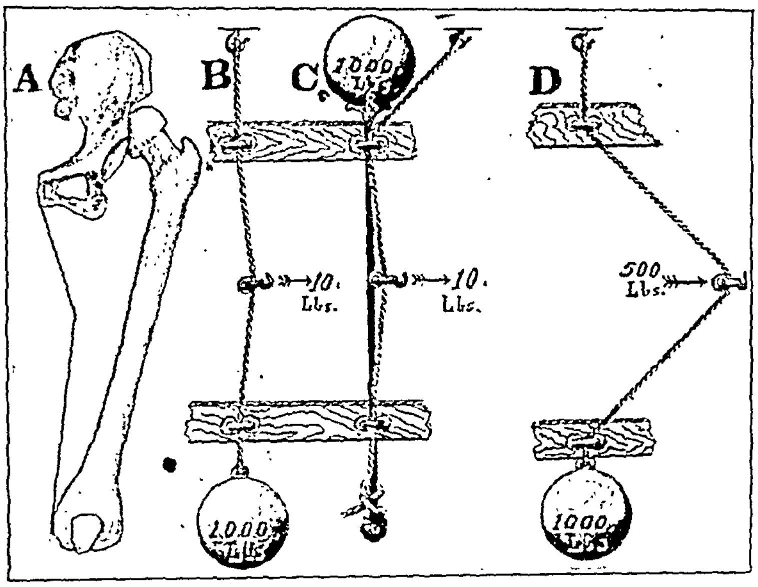

Fig. 7.—Illustrations of possible destructive pressure on the head of the femur and acetabulum by applying lateral pressure or traction to the gracilis or adductor muscles: *A*, displacement of the femoral head through improper traction or pressure; *B*, slight lateral traction in the center causing weight to rise; *C*, weight on top of rod raised by lateral traction; *D*, extreme traction required to lift the same weight to an angle of 90 degrees.

In Figure 9 a band under the wrist serves to hold the elbow in right angle position, affording a base for the angle pad. This type of splint is not new and untried, but has been in use by me for twenty-five years. The wire and adhesive plaster brace, as will be noted at *C*, is light, rigid and clean, permits free inspection at all times and is easily adjusted, is neither expensive nor difficult to construct, and is efficient in affording constant diastasis and maintaining constant normal length of humerus. The fixation area is supplied by the superior axillary base and the lower base on the forearm close to the arm as shown in Figure 9 *C*. Likewise, *B* represents the axillary sling, crutch or bandage showing the pectoralis muscles in front and the latissimus dorsi behind, against which the padded sling rests protecting the axillary blood vessels and nerves. *A* is a transverse section through the arm and chest showing that the padded axillary sling should not compress the blood vessels or nerves of the arm.

Figure 10 shows in series the construction of the angle or elbow pad. I have frequently made them out of empty ether cans. Have the nurse hold the can over a gas flame until the solder melts, quickly throw the can on the tile floor to prevent its resoldering itself, then cut and bend it, stick it together with adhesive plaster and pad it, and apply it with bandages that do not encompass the arm or forearm, but attach to the brace as shown in the drawing.

Fractures of both bones of the forearm seem to give considerable trouble for a variety of reasons. These bones are provided not only with muscles paralleling them capable of long axis compression, but also diagonal pronators and supinators, and one other not to be forgotten is the rotator. The last and universally overlooked condition is the fascia. The fascia is inelastic, built to fit over a forearm containing only two bones. If the bones are broken obliquely and override each other, the inelastic fascia is called on to provide space for three or four bones instead of two.

Figure 11 *A* represents normal cross-section of the forearm, showing the interosseus membrane in a straight line. *B* represents fractured bones overriding and taxing the inelastic fascia to its full capacity. The interosseus membrane no longer occupies a straight line position.

A frequently used method of treatment consists, first, of traction, and, second, the application of a padded separator to be crowded down between the bones, as shown at *F*. If the fascia is loose and flabby, this scheme might be feasible; but after fracture there is usually sufficient swelling to fill the fascia to its capacity. If already tense, then any pressure will draw the bones closer together instead of separating them. This is shown at *C* and *D*. It is a well known and established fact that a circle surrounds the greatest area of any geometric figure for a given fixed length of peripheral line. Consequently, if the circle is compressed at any point, the compression is equal for all parts and the compression is extended to the contents of the circle. Therefore the intervening separation pad becomes an interosseus approximator, and obviously should not be used.

The question of using fixation energy in this case becomes complicated. Some experienced operators use Lane plates, although Lane informs us that they are not as good for arms and forearms as they are for legs and thighs. I dare say many physicians have had good and bad results with them.

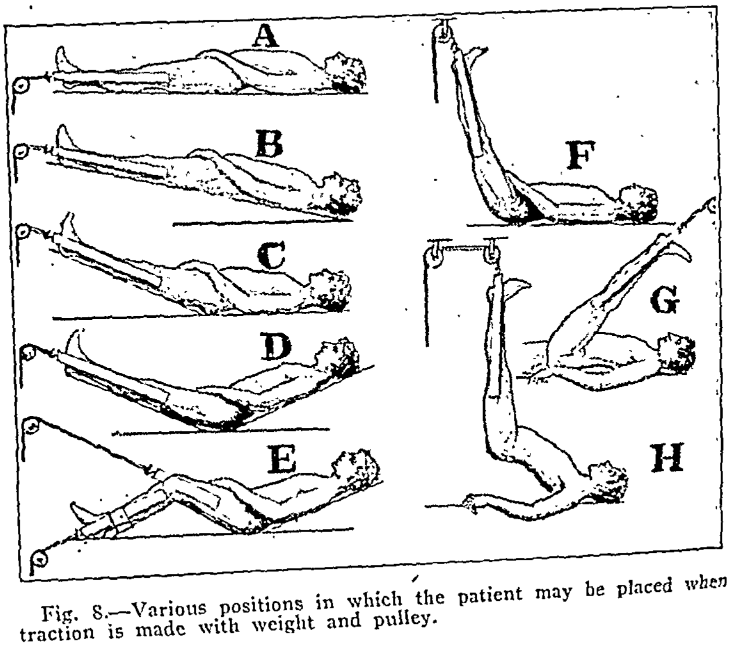

Fig. 8.—Various positions in which the patient may be placed when traction is made with weight and pulley.

Figure 12 shows a Lane plate installed. It will be noted that only one or two turns of thread are confined to the durable, hard shaft of the bone, while six or seven turns of the thread extend into the open space of the canal of the bone. Of course, no efficiency accompanies this unengaged portion of the screw. Furthermore, the round hole that fits so snugly the newly installed screw becomes oval or egg-shaped in a week or two, and then even the upper thread or two become as useless as those sticking down into the marrow or open canal.

Figure 13 represents the bone gimlet with its low melting alloy handle compared with the screw. It will be noted that the screw at best has only one-eighth to three-sixteenths inch bearing, while the pin goes clear through the bone, engaging both sides. Now the little round holes for the pins become just as oval as they do for the screws. The difference is that the pins transfix the entire forearm, and at all times provide external control over internal conditions. If the pins become loose, the slack can be taken up outside. It cannot be taken up with a Lane plate, but the plate can slough out while the pins remain in position. In the event that the Lane plates succeed in staying in, they remain in forever; but the pins are removed after bone union, and the forearm is not half human and half hardware. Another advantage of the pin is the long leverage obtained from passing from one side of the bone to the other. The strain is divided and the holes remain round longer. The details concerning lack of infection and freedom from pain have been covered in previous papers, although they are open for discussion at any time.

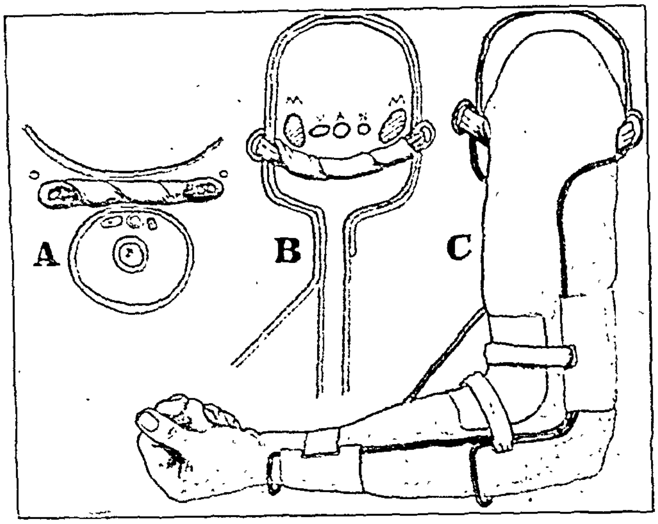

Fig. 9.—The principle of fixation energy as applied to fractures of the humerus: *A*, cross section of the arm illustrating the relationship of vessels and nerves to the humerus and showing the correct position of the axillary sling to prevent compression of the blood vessels, and nerves; *B*, relation of important structures to the padded axillary sling; *C*, axillary sling and wire brace applied so as to hold the humerus in the correct position.

The last fixation device that I shall take up is the wire stabilizer shown in Figure 14. In this diagram there are presented four or five technically different types of wire stabilizers attached internally to the broken bone and externally to the straight edge, which straight edge is usually made of the low melting alloy. In badly shattered bones these stabilizers and external straight edges are indispensable. I prefer the plain flat metal to the tube instruments. Sterilization is more certain and easier to accomplish. This device forms the simplest type of stabilizer.

CONCLUSIONS

I trust that I have been both fair and successful in presenting just a few of the many defects in treating fractures, and also successful in presenting efficient and unquestionably sound remedies for the methods I have referred to as inappropriate or deficient.

In the department of mechanical surgery, the surgeon's methods will be judged to some extent by their mechanical soundness. Consequently, fractures and dislocations and other cases involving mechanical problems will be referred to that department which is the most efficient and most capable of treating them. If it can be shown that we can best treat these patients, they will not be classed as general surgical cases.

1899 North Illinois Street.

ABSTRACT OF DISCUSSION

Dr. Jefferson D. Griffith, Kansas City, Mo.: Fractures of the long bones, especially the fractures of both bones of the forearm, are difficult to treat and get a perfect result. One may get a functional result with the bones overlapping, and a useful arm, but the thing is, How can we get a perfect result? We can all use this apparatus of Dr. Allen's. I think very well of it. The claim made of reducing and having an aseptic condition is all right.

Some years ago Dr. Parkhill of Denver employed the same principle, with screws and clamps which he connected afterward. They could be put on without any trouble at all with the patient under an anesthetic. I have used his device, and I could succeed in maintaining reduction very well with it after I got it on. But it required the use of his complete outfit, which you must have on hand before you commence reducing the fracture. After you have the pins through, by Dr. Allen's method, you have to use the fusion clamp to maintain the malleable metals in position. If this can be done easily, I like it. The Parkhill method was the same as that of Dr. Allen, except that it had the screws with it, with movable plates on both sides. I have his apparatus at home now and have used it in fractured femurs and forearms. I like Dr. Allen's method much better, I think, if I can find a way to get at it and do it easily.

Dr. Edwin W. Ryerson, Chicago: I should like to ask whether Dr. Allen has any difficulty with paralysis from the crutch under the arm in fractures of the humerus treated by his ingenious apparatus.

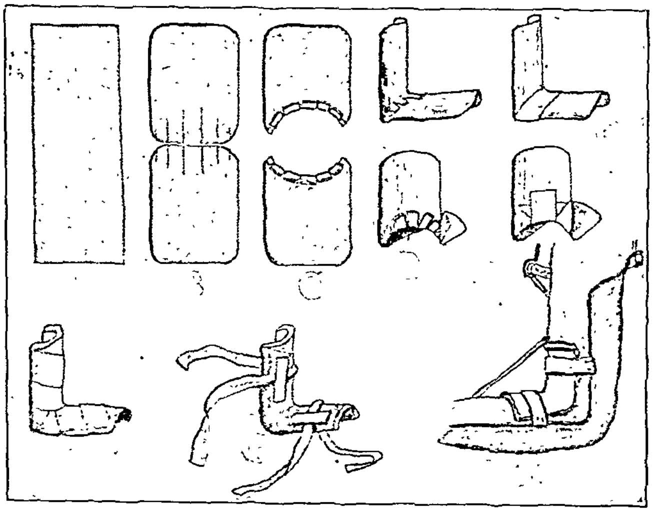

Fig. 10.—Method of construction of the angle, or elbow pad from an ether can: *A*, ether can flattened out; *B*, ends cut ready for bending; *C*, ends curved; *D*, ends approximated to form an angle; *E*, adhesive strips fasten ends together; *F*, the can padded; *G*, arm straps placed in position; *H*, the elbow support applied.

Dr. Joseph E. Root, Hartford, Conn.: I wish to emphasize the value of a constant fixation, instead of the old method of using a weight and pulley, which are inconstant. We have in Connecticut a celebrated family of Swedes who are natural bonesetters. The best representative of this family once made this remark, which has always stuck with me, and has been my guide in my entire work with bone: "Doctor, if you put on a variable extension,"—he referred to the ordinary

At every meeting I am asked for the formula of this alloy. It contains 50 per cent. lead, 25 per cent. tin, 12.5 per cent. cadmium and 12.5 per cent. bismuth. The wire loop stabilizers are not through and through devices. I have seen real pus accumulate about them and flow out over the skin without one degree of temperature rise. They are so constructed as to provide sufficient outlet from their base out.

I am very glad that Dr. Ryerson has called attention to the possibility of establishing crutch paralysis by using the splint for fractures of the humerus. Like any crutch made on the nonrigid straplike plan there is less danger of crutch paralysis than with the rigid type of crutch. But it must be remembered that any crutch paralysis also depends on a prolonged and a considerable degree of pressure which is never necessary in this system of treatment for the following reasons.

In the first place there is little or no traction necessary to hold broken bones in their proper place after they have once been pulled down to their proper place. For twenty-five years I have worked diligently on the application of mechanical principles to surgical procedures and I want above all else to have orthopedic surgery put on a sound dynamic basis, since it represents the mechanical division of all medicine and surgery and it should be unassailable in its very foundation. Not one has come out and attempted to discuss the basic principles I have come to present to you. There is not one who can logically account for the basic mechanical principles that he uses every day.

THE THERAPEUTIC VALUE OF ORAL RHYTHMIC INSUFFLATION OF OXYGEN

WITH DESCRIPTION OF A SIMPLE APPARATUS FOR ITS EXECUTION *

S. J. MELTZER, M.D., LL.D.
NEW YORK

The literature on the relation of oxygen to the processes of life, the rôle which oxygen plays in internal and external respiration, and the availability of that gas as a therapeutic measure, is immense. I shall not attempt to review it even in a cursory way, but it may not be amiss to discuss some of the problems of this subject, especially those which we encounter in recent medical literature. We may conveniently divide the discussion of our subject into two aspects: the physiologic and the therapeutic.

THE PHYSIOLOGIC ASPECT

It seems to be the dominant opinion among physiologists that inhalation of pure oxygen or air strongly enriched with oxygen is of no greater oxidative value to the normal organism than the inhalation of simple atmospheric air, which contains about 20 per cent. of oxygen. This view seems to be upheld by two considerations. In the first place, it is a fact that the oxygen in the blood is carried chiefly by the hemoglobin, which, it is generally assumed, is nearly saturated with oxygen and would not take up more of it even if the individual were breathing pure oxygen. The only part of the blood which may take up more oxygen when offered under higher pressure is the serum; but it seems to be generally accepted that the amount of oxygen which the serum is thus able to take up is a small and negligible quantity. The second influential consideration is the assumption, which seems now to be quite generally accepted, that the decision as to the amounts of oxygen which the organism is to absorb rests finally and exclusively with the body cells, that is, with their necessities, activities and storing capacities, and is not influenced by the oxygen pressure within the tissue lymph. In other words, oxidation, the chief process of life, depends on cell activity and not on the tension of oxygen within the blood or within the tissue lymph.

The question under discussion has been the subject of numerous investigations. Lavoisier and Seguin, as far back as 1789, were the first to draw the conclusion from their experiments that "there was no increase in the vital processes as the result of breathing pure oxygen." Probably the last, and surely one of the best and apparently most careful investigation, is the one that was published a few years ago in this country by Benedict and Higgins.[1] They say that a critical examination of the entire literature strongly favors the belief expressed by Lavoisier. But they say that "nevertheless we find that there is much that is lacking in the evidence thus far secured, so that the matter is not yet definitely settled." Their careful investigations, however, led them to a similar result, namely, that there is no difference in the gaseous metabolism between breathing ordinary air and breathing oxygen mixtures of 40, 60 or 90 per cent.

But even with regard to this careful research, Krogh[2] said: "It is extremely probable, however, that there is in these experiments a slight systematic error," and he comes to the conclusion that the "breathing of oxygen does increase the metabolism to some slight extent."

Apparently there are many factors of greater or lesser importance that have to be taken into consideration before we shall be justified in accepting as final any estimate of the extent of the influence that the inhalation of air with a higher partial pressure of oxygen may exert on the normal gaseous metabolism. The hemoglobin is even normally not completely saturated with oxygen, nor is the oxygen in solution in the blood serum normally an entirely negligible quantity, and it is certainly not negligible during an increase of the partial pressure of oxygen of the inhaled air.

There is no real quantitative analysis of the amount of oxygen present in the tissue fluid. The analysis of the various body secretions does not mean the same as an analysis of the tissue fluid. There are some authoritative investigators who still believe in the storage of oxygen, intramolecularly or extramolecularly, in loose chemical combination or in physical solution. There are other considerations to be solved; but I shall not attempt to discuss any of these points. However, I wish to call attention to one factor which has not yet been taken properly into account, or at least not from the proper point of view, as it seems to me, and that is that element in biology which I designated, a decade ago, as the factor of safety.

All experiments under consideration start implicitly from the point of view that the oxygen content in the air is the physiologic amount sufficient for the maintenance of the life of the animal under normal conditions. But is this entire amount also indispensable? It has been established by many experiments that the

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* From the Department of Physiology and Pharmacology of the Rockefeller Institute for Medical Research.

[1] Benedict and Higgins: Effects on Men at Rest of Breathing Oxygen-Rich Gas Mixtures, Am. Jour. Physiol., 1911, 28, 1.

[2] Krogh, August: The Respiratory Exchange in Animals and Man, London, Longmans, Green & Co., 1911.

organism remains in a normal condition even if the partial pressure of the oxygen in the air amounts to only 12 or 13 per cent. What is the significance of the considerable surplus of oxygen that the animal is normally breathing? From my point of view it presents a factor of safety in the function of respiration, a factor which I have shown to exist in most of the functions of the animal body.[3] I shall not attempt to discuss again this problem in its details. But it will not be amiss to give an example taken from every day life which will suffice to illustrate the meaning of the underlying principle of the factors of safety and the simplicity of its requirements. Let us take, for instance, two houses of about the same size, of which we have good reasons to expect that each house uses up the same amount of coal in a given time. But while the occupant of one house, who may possess larger means and a greater foresight, lays in a larger supply of coal, let us say, twenty tons at a time, we find the occupant of the other house, perhaps because of lack of means or the necessary foresight, provides himself with only one ton of coal at a time. The difference in the fate between the occupants of the two houses becomes strikingly evident when unexpectedly necessities arise for greater consumption of coal, and when, furthermore, these necessities set in under circumstances of time and place that make coal difficult to obtain.

Life is characterized by the instability and variability of its states, and all its functions must therefore be so arranged as to be capable of being ready to meet the highest possible demands. The function of respiration has for its object chiefly the provision of the organism with oxygen, properly and safely. While, as far as the muscle system is concerned, the provision of the respiratory function with factors of safety is under normal conditions surely of a satisfactory extent, because, as we know, the muscle is capable of continuing its contractions even if the oxygen tension of its surrounding atmosphere is fairly low, it is different with the central nervous system. Here we know that a comparatively slight reduction in the oxygen tension interferes profoundly with the activities of this system. Are we justified in assuming that the addition of 7 or 8 per cent. of oxygen is just the limit of the factors of safety which the respiratory function may need and use under all conditions? Furthermore, in breathing normal atmospheric air, what is the fate of the 7 or 8 per cent. of oxygen present in the normal air above the amount actually indispensable for maintenance of life? Is this oxygen stored away somewhere and in some manner, to be ready for immediate use when needed, or is it normally unabsorbed and got rid of in the same manner as is assumed to be the case when 20 or 30 per cent. of oxygen is artificially added to the atmospheric air?

THE THERAPEUTIC ASPECT

The extensive experiments on which the prevailing view has been founded, namely, that the addition of oxygen to the atmospheric air does not affect the normal metabolism, were made on normal resting individuals. But the processes of life, even in the normal individual, and even while at rest, cannot be represented by a straight line. The processes vary continuously within certain limits; that is life. These variations in the demands have to be met by variations in the supplies which have to be ready in store to the extent corresponding to the maximum limits of the demands of normal life. The 7 or 8 per cent. surplus of oxygen in the atmospheric air is apparently sufficient to meet the maximum demands of the respiratory function of the normal individual when at rest. But would it be sufficient to cover the demands when the individual is engaged in hard work? We know that unusual physical effort leads to shortness of breath, to dyspnea. Could this not be remedied by adding oxygen to the atmospheric air which the hard-working person has to respire? This is indeed the case, a fact which has been discovered and established by Leonard Hill[4] and his co-workers. Hill and Flack[4] found that inhalation of oxygen makes running up and down stairs easier, can be accomplished in a shorter time, relieves the feeling of dyspnea, and restores strikingly the vigor after fatigue from boxing, etc. They believe that the fatigue which follows an athletic feat is cardiac in origin and due to want of oxygen. Haldane,[5] whose great merits in the elucidation of the physiologic relations of carbon dioxid to the function of respiration are well known, was inclined to explain Hill's observation as a result of the deep breathing which is apt to occur in persons to whom oxygen is administered. Haldane's view was later refuted by new experiments, carried out by Hill and Mackenzie,[6] which brought new evidence that the favorable effects that they have obtained were indeed due to the inhalation of oxygen.

From the observations of Hill we learn that the addition of oxygen to atmospheric air exerts a favorable influence under conditions of greater bodily activities. Is inhalation of air enriched by oxygen also capable of exerting a favorable influence when the body is in a condition of rest but is undergoing pathologic processes? In other words, is there any evidence that inhalation of oxygen is capable of exerting a therapeutic effect? This question concerns a wider field than I intend to cover in this paper. There is no doubt now as to the therapeutic value of inhalation of air-oxygen mixtures in cases of poisoning by gases that affect the normal condition of the hemoglobin. But I wish to confine my remarks to the use of oxygen in certain types of diseases. Here we encounter a very unsatisfactory situation. On one hand, hardly a patient, sick with a respiratory or cardiac disease, will be permitted by the physician in attendance to die without trying oxygen inhalation. On the other hand, not many practitioners will readily admit that oxygen is doing much good in these cases.

Two factors are at the bottom of the skeptical attitude of physicians toward the value of oxygen as a therapeutic agent. In the first place, many clinicians are influenced by the view entertained by the great majority of physiologists that the addition of oxygen to the inhaled air is incapable of exerting a physiologic influence, that it does not affect the metabolism, and that the added oxygen returns unabsorbed. Furthermore, many clinicians and pharmacologists are still under the influence of the teaching that there is no fundamental difference between physiologic and pathologic processes. In this connection, the present attitude of the physiologist Haldane is very instructive.

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[3] Meltzer, S. J.: The Factors of Safety in Animal Structure and Animal Economy, The Journal A. M. A., Feb. 2, 1907, p. 655.

[4] Hill and Flack: The Influence of Oxygen on Athletes, 1909, **38**, Jour. Physiol., **28**.

[5] Haldane, J. S.: The Effects of Previous Forced Breathing and Oxygen Inhalation on the Distress Caused by Muscular Work, Jour. Physiol., 1909-1910, **39**, Proc. Physiol. Soc., London, **1**.

[6] Hill and Mackenzie: Jour. Physiol., 1909-1910, **39**, Proc. Physiol. Soc., **33**.

As stated above, Haldane doubted that the favorable influence which, according to Hill, the administration of oxygen exerts on the work of athletes is due to oxygen. Very recently, however, Haldane[7] came out strongly for the administration of oxygen in inflammatory conditions of the lungs. He says:

> It may be argued that such measures as the administration of oxygen are at the best only palliative and of no use, since they do not remove the cause of the pathological conditions. As a physiologist, I cannot for a moment agree with this reasoning. The living body is no machine, but constantly tending to maintain or to revert to the normal, and the respite afforded by such measures as the temporary administration of oxygen is not wasted, but utilized for recuperation.

The second, and probably the more influential factor, is the actual fact that practitioners rarely see any favorable effect that may have been brought about by the administration of oxygen. But the general conclusion drawn from this fact, namely, that the inhalation of oxygen is incapable of exerting a favorable influence in pathologic conditions, is unjustifiable. The failure to see such an influence is probably due essentially to the inefficient method of administration. In most instances oxygen is given in a weak current through a funnel which is kept an inch or more from the mouth of the patient. Under these conditions we can hardly speak of "inhalation of oxygen." The atmospheric air which the patient actually inhales is probably not richer by more than 2 per cent. of oxygen, if by so much. On the other hand, the funnel may be instrumental in making the inspired air richer in carbon dioxid and surely makes the air over the face warmer, an unpleasant sensation to the patient, who prefers to be fanned and cooled off. Therefore, we often see the patient pushing the funnel away or turning the head away from it.

THE AUTHOR'S APPARATUS AND EXPERIENCE IN THE USE OF IT

My personal experience dates back about two years. I was called up one night by a very unhappy mother who told me that her only son was dying and begged me to come over. The athletic young man of 25 years was sick with pneumonia, Type II. I arrived at about 2 a. m. and found several physicians around the patient, who was unconscious and deeply cyanotic. Respiration was rapid and very shallow. He had no corneal reflex and there was a thready pulse of about 190 per minute. The patient was apparently dying and the physicians expected death to take place within the next ten or fifteen minutes. Nurses were administering oxygen in the usual manner, that is, through a paper funnel, kept at some distance, the gas bubbling through a wash bottle at a moderate pace. I disconnected the rubber tube from the foot bellows of my pharyngeal insufflation apparatus[8] that I brought along with me, and connected it with an oxygen cylinder. I then inserted the pharyngeal tube in the mouth (not in the pharynx), turned on the oxygen and started working the respiratory valve. Within a short time after the beginning of the oxygen insufflation in the new manner, the cyanosis disappeared and the face of the patient became actually pink. Several minutes after the discontinuance of the insufflation, the cyanosis began to reappear gradually. In the course of the next five hours the experiment was repeated numerous times and invariably with the same result, that is, the cyanosis disappeared promptly during the insufflation of oxygen and reappeared several minutes after cessation of the insufflation. There was no perceptibly favorable influence on the other symptoms of the patient, except perhaps on the pulse. In the morning hours it came down to 180 per minute and was perhaps slightly fuller. At any rate, in the bedside parlance, it could be honestly stated that "the patient was holding his own." The waste of the gas was considerable. A tank of oxygen was used up in a short time. About 7:30 in the morning the supply of oxygen of the neighboring drug stores became exhausted, and it took some time before another tank of oxygen could be procured. Five minutes after the last insufflation had to be discontinued the heart stopped suddenly. The resumption of the insufflation of oxygen about ten minutes later had no effect whatever.

This patient was not saved; but nobody could have expected it when beginning treatment at that terminal stage. His life, however, seemed to have been prolonged, and it is impossible to state how much longer death would have been deferred, if the supply of oxygen had not given out. But this is an insignificant issue compared with the fact that the insufflation exerted an unmistakable effect on the profound cyanosis. Cyanosis, of whatever origin and nature, is a sure evidence that the respiratory function is profoundly disturbed. In the present case the cyanosis promptly disappeared on the administration of oxygen by the new method. Although we are dealing with only one case, each instance in this case in which the cyanosis disappeared on the insufflation of oxygen and reappeared on stopping the insufflation presents a complete experiment, an experiment that we were able to repeat at will. We made more than a dozen such experiments, and the results were invariably the same. These experiments permit at least the provisional conclusion that the insufflation of oxygen by the method employed in this case affects favorably the function of respiration when it is pathologically profoundly disturbed.

In the case here mentioned the apparatus employed was provisionally arranged and applied in great haste without consideration for the great waste of oxygen and other shortcomings. After observing the results, which seemed to be very encouraging, I devised a special apparatus for our purpose which is simple, inexpensive and works very satisfactorily.

The thick walled rubber tubing that is connected with an oxygen tank terminates in a strong rubber bag which, at its distal end, is connected with the proximal end of the respiratory valve.[9] The distal end of the last named device is connected by means of a short piece of rubber tubing with a flat metal tube which we may designate as a "hollow tongue depressor." If the ring of the respiratory valve is kept in the inspiratory position (right side), when the oxygen is turned on, the gas streams through the tube into the bag and from there escapes through the respiratory valve and the tongue depressor. If the ring is kept in the inspiratory position (left side) the oxygen cannot pass through the respiratory valve, and accumulates within the bag. The accompanying illustration shows the last mentioned position.

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[7] Haldane: Brit. Med. Jour., Feb. 10, 1917. Benedict and Higgins (Note 1).

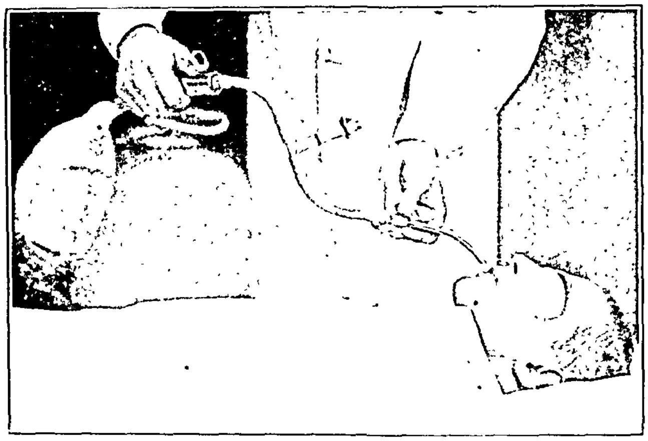
[8] Meltzer, S. J.: History and Analysis of Methods of Resuscitation, Med. Rec., New York, July 7, 1917; Pharyngeal Insufflation, a Simple Method of Artificial Respiration, The Journal A. M. A., May 11, 1912, p. 1413; Simple Devices for Effective Artificial Respiration in Emergencies, ibid., May 10, 1913, p. 1407.

[9] A description of this device is contained in the Medical Record, New York, July 7, 1917.

The tongue depressor should be inserted in the mouth not much farther than the middle of the tongue, so that, if the patient is conscious, the presence of the depressor may cause no gagging or other discomforts. The lips should be kept closed. The ring should be moved from left to right and from right to left (a respiratory circle) about twelve times per minute. The oxygen should be turned on slowly, and the velocity of its escape should be controlled, so that it does not cause an overdistention of the bag during the expiratory pause. The turning of the ring to the right should be done slowly, so that the inspiration may develop gradually; the turning to the left is preferably done abruptly. The expiratory air escapes during the closure of the valve through the nose and through the aperture that appears above the closed valve when the ring occupies an expiratory position. It is advisable to time the inspiratory insufflation synchronously with the inspirations of the patient. However, I found that after a while the respiratory phases of the patient become involuntarily adapted to the phases of the insufflation.

I have tested on myself the action of insufflation of oxygen by means of this apparatus. When the insufflation is carried on under moderate pressure, there are no unpleasant sensations whatever. When it is done under too much pressure, the surplus of oxygen escapes through the nose and never enters the esophagus; but it causes some unpleasant sensations which conscious patients will probably not be willing to stand for any length of time.

My chest was examined by auscultation while I was receiving oxygen insufflation. It was found that each insufflation produced a distinct inspiratory blowing sound which was distinctly recognized even while I was holding my breath. It seemed, further, that the oxygen was capable of entering my lungs even when I was endeavoring to keep the glottis in a state of adduction. Some other objective and subjective effects of the insufflation experiments on myself will be mentioned later.


The oral insufflation apparatus. The rubber tubing which is connected with an oxygen tank terminates at its distal end in a strong rubber bag which in turn is connected with the "respiratory valve." The ring of this device occupies in this illustration an expiratory position; hence the distention of the bag. Above the ring an aperture can be seen, which appears only when the valve is closed (expiratory position). The respiratory valve is connected at its distal end by means of a short piece of rubber tubing with the hollow "tongue depressor." The T tube is here unessential.

The results of the observations made by the method of auscultation induced me to make a few experiments on animals. In deeply anesthetized cats, with the thorax split transversely, the insufflation by means of the apparatus was sufficient to distend the lungs moderately with each insufflation, even when the "tongue depressor" was inserted in the mouth, as in the human being, not farther than the middle of the tongue. It appeared, however, that when the tongue depressor was kept at that position, life could not be kept up indefinitely. When the tongue depressor was inserted in the pharynx, the oxygen entered readily the gastro-intestinal canal, which had to be prevented by keeping the abdomen compressed. With this precaution the artificial respiration was excellent and the animals remained in good condition. But in this arrangement the method is identical with the method of intrapharyngeal insufflation that I have described elsewhere, and is not applicable to conscious patients.

Dr. A. L. Meyer of our laboratory performed on himself a couple of experiments with the apparatus. After having been insufflated for about eight minutes, he analyzed his expiratory air at the end of the insufflations and found it to consist of nearly pure oxygen. The nitrogen of the atmospheric air was displaced by the oxygen.

The foregoing observations demonstrate that by using the "apparatus for oral insufflation of oxygen" under moderate pressure, oxygen undoubtedly enters the lungs, assists in distending them during inspiration, and displaces largely the nitrogen of the "dead space." The assistance that it renders to the inspiration ought to be of special value when the respiration of the patient is very shallow. The rhythmic character of the insufflation is, on the other hand, of value, as it does away with the resistance which the pressure of the continuous insufflation undoubtedly offers to the expiration, especially when, owing to the low vitality of the patient, the expiratory efforts fail to get succor from the activity of the expiratory muscles. Haldane administers the oxygen by means of a mask. The interruption of the continuous stream of oxygen in his method depends on the force of the expiration, which is expected to close a mica valve and, at the same time, prevents the entrance of the expiratory air into the bag that stores up the oxygen. I developed my simple apparatus about eighteen months previous to the appearance of the communication of Haldane. I then gave up the use of the mask even in my pharyngeal apparatus, mainly because it is liable to drive some deleterious material that may be present in the nasal and the postnasal cavities into the trachea and the lungs, there causing an infectious inflammation. Hill and Mackenzie[6] stated that in giving oxygen during athletic work they did not use the mask, because it increases the dead space. In dealing with sick persons some other points must be regarded as more important. Either the patient is already unconscious, in which case the respiration will be shallow and the expiratory force will be insufficient to close the valves and overcome the pressure within the bag. Or the patient is still conscious and he will surely feel the face piece, which fits over mouth and nose and is kept in position by an elastic strap, as a great inconvenience, and will not tolerate it. Haldane says he had but few opportunities to give his method a practical trial, but he reports that in a case of valvular disease he has seen the cyanosis "clear up at once on the administration of oxygen." There is some other difference between Haldane's method and mine. By Haldane's arrangement the oxygen is accumulated in a bag of thin vulcanized rubber. This oxygen enters, then, through mouth and nose, under comparatively low pressure, and it was not established whether the stream enters the lungs with any force capable of causing any degree of artificial inspiration. The bag in our apparatus, on the other hand, has thick walls and drives out the oxygen under a pressure which is sufficient, as we have previously shown, to cause a deeper inspiration and as a consequence also a stronger expiration. Haldane says that he knows from experiments on himself and others that the immediate effect of suddenly giving an abundance of oxygen may sometimes be unpleasant. I have taken oxygen many times by means of my apparatus, and sometimes as long as eighty minutes, and never felt any unpleasantness from it. Under stronger pressure and prolonged insufflation there might arise a sensation of dryness. This can be easily remedied by interpolating between the oxygen tank and the bag a wash bottle containing a Ringer solution. I agree, however, with Haldane that the oxygen should be turned on slowly.

Not being any longer in private and hospital practice, I am not in the favorable situation to have many opportunities for testing personally the value of the method. I am, nevertheless, in a position to report encouraging and instructive results obtained in a few cases, three of which were observed at the Rockefeller Hospital. I have to thank Dr. Chickering for the details in these cases. The first case was a most gratifying one. One forenoon in November, 1916, Dr. Cole, the director of the hospital, telephoned to our laboratory asking me to come over and administer oxygen with my apparatus to a pneumonia patient. To my reply that I would be over in half an hour, as I had to finish an experiment, Dr. Cole remarked that in all probability it would then be too late. I went over immediately and started the administration of oxygen by means of the oral insufflation. That patient recovered. Concerning the details of that case I shall quote Dr. Chickering.

REPORT OF CASES

Case 1.—The patient came in on the second day of his disease having signs of consolidation of both lower lobes of the lungs. . . . A Type II pneumococcus was recovered from the sputum. . . . He was treated with ethyl-hydrocuprein (optochin) on the third day of his disease, and this treatment was continued during the fourth, fifth, sixth and seventh days . . . partly by mouth and partly intramuscularly. On the fourth day of his disease the patient appeared extremely ill, temperature being 103.4 F., pulse 152, and respiration 40. He was delirious, color was ashy gray, lips and finger tips very cyanotic and tracheal râles were marked. At 10:45 a. m. the patient was given oxygen according to Dr. Meltzer's method intermittently for about two hours. While the oxygen was being given, his color changed surprisingly; his lips and ears lost their cyanotic color and took on a pinkish tint, and his general condition seemed decidedly improved. The following morning the patient's temperature and pulse were lower, 100.5 F., pulse 104 and the respirations 32. His temperature gradually came down by lysis to normal on the twelfth day of his disease. Convalescence was uninterrupted, no complications developing except a moderate amount of sterile pleural effusion which gradually cleared up without aspiration.

Case 2.—The patient was admitted, Feb. 19, 1917, and the oxygen treatment was begun on the twelfth day of the disease, one hour before death, February 28. The patient received ethyl-hydrocuprein treatment every day from the fourth day of his disease to the twelfth, the day of his death. On the day of his death, his blood culture contained innumerable colonies of pneumococci of Type II. "On the afternoon of his death his color suddenly changed . . . and severe cyanosis developed." Oxygen treatment was started. "While the oxygen was being administered, patient's cyanosis became less intense, but as soon as the oxygen was stopped cyanosis rapidly returned."

Case 3.—The patient was admitted to the hospital, Feb. 25, 1917, on the first day of the disease. "The next morning the whole right chest was involved posteriorly, and on the following day signs appeared anteriorly. At the same time the left chest became filled with fine moist râles. From the sputum an atypical Type II pneumococcus was obtained. Blood culture was sterile, blood count 29,000. . . . On the fourth day of the disease the signs became more marked for the left lower lobe; the temperature rose to 104.5 F. and the pulse to 140. The patient became pale and cyanotic. The extremities were cold and expirations labored and moist. Ethylhydrocuprein was begun at 2 p. m., and oxygen at 3 p. m.[10] . . . During the afternoon the pulse rate gradually increased to 142 (8 p. m.). The semicomatose, delirious condition deepened into unconsciousness about 7 p. m. From then on, the color could be maintained with oxygen, but the pulse quality became poorer; respirations increased from 44 to 60, and the patient's throat gradually filled with mucus. There was dulness over the left lower lobe, with râles throughout the left chest. From 2 a. m. to 6 a. m., the time of death, it was necessary to use oxygen continually in order to maintain respiration. If the oxygen was stopped for a few minutes respiration became more shallow and slow, and a dull blue flush appeared on face. This immediately disappeared with more oxygen. Gradually her color and respiration failed in spite of continual oxygen and the pulse, which was good almost to the end, became more feeble and gradually less rapid, until it failed entirely at 6 a. m."

COMMENT

In these three cases the pneumonia was due to pneumococcus of Type II, for which an efficient antiserum has not yet been developed. In all three cases the oxygen treatment was instituted very late, when the condition of the patient already appeared to be quite hopeless. Nevertheless in all three cases the oxygen insufflation manifested the tendency to exert a favorable influence. Even in the second case, in which the oxygen treatment began only one hour before death, the cyanosis of the patient became less intense while the oxygen was administered, to return rapidly when the oxygen was discontinued. This favorable effect on the cyanosis was still more striking in the other two cases, in which each short series of insufflations produced a change of color which outlasted the insufflation by shorter or longer periods. In the first case the face had a leaden, ashy gray color which is characteristic for oxygen deficiency.[11] This color disappeared quite soon after I started the insufflation, and the face gradually assumed rather a pinkish appearance. When I first saw the patient I understood why Dr. Cole thought that the administration of oxygen after half an hour might prove to be too late. I had little hope that the administration of oxygen would save the life of the patient. He was unconscious, had no corneal or lid reflex, the pulse was rapid, small, with very little tension, and the tracheal râles had the death sound. Nevertheless, that patient recovered. The third patient, who received oxygen insufflation for about fifteen hours, died; the pneumonia in this case was very extensive; it spread over both lungs. But here again, besides the pronounced action on the cyanosis, there seems no doubt that the oxygen insufflation prolonged the patient's life. We may be, in fact, we ought to be, optimistic enough to assume that in conjunction with the use of some other efficient or even only semiefficient remedies, early insufflation of oxygen may offer a chance even to patients of this type.

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[10] In the first few hours the oxygen was administered without expiratory interruptions.

[11] Haldane: Brit. Med. Jour., Feb. 10, 1917.

The third patient has taught another favorable lesson, namely, that the oral insufflation of oxygen may assist in maintaining respiration. In the last few hours of her life, when the insufflation was stopped, the respiration became shallow and slow, and a dull blue flush appeared on her face which disappeared as soon as the oral insufflation was begun again. It acted apparently like artificial respiration. This fact reminds me of the statements previously made with reference to the auscultation of my chest while receiving oral insufflation, and to the behavior of the lungs in animals under the same condition.

I shall record further observations made by Dr. Victor Meltzer on a woman, aged 60, with marked arteriosclerosis and hypertension. For the last two years she was most of the time subject to cardiac dyspnea and had frequent and severe attacks of pulmonary edema. In the last two months of her life, oxygen was administered to her by means of the apparatus for oral insufflation during the attacks of dyspnea as well as those of pulmonary edema. It proved to be of great value, and afforded the patient great relief. When administered at the beginning of an attack of edema, not infrequently it prevented its full development. Among the most noticeable effects were the rapid disappearance of cyanosis.

Before concluding, I shall record briefly two observations made on myself. For experimental purposes I had oxygen administered to me several times by means of oral insufflation for periods lasting between thirty and eighty minutes. Objectively I can state that the insufflation brought high color into my face, which was noticed by persons who did not know of my experiment, and which did not leave me for several hours. Subjectively I found that it removed the sensation of fatigue and that I felt stimulated for the rest of the day. Of course, the latter fact might not have been due to the insufflation of oxygen. Not infrequently a successful experiment may bring about similar results. At any rate, both facts concern the problem of the possibility of a physiologic action of oxygen when administered by rhythmic oral insufflation, a problem which I shall not discuss here.

SUMMARY AND CONCLUSIONS

In four pathologic cases it was definitely established that the rhythmic oral insufflation of oxygen reduced or removed promptly the cyanosis, and in three of the cases the patient turned even pinkish shortly after the insufflation was begun. Without doubt these prompt effects must be ascribed in the first place directly to the action of oxygen. But it must be admitted that the rhythmic insufflation, since it is capable of assisting in the maintenance of the respiration, may be helpful in the ventilation of the lungs and thus helpful also in the removal of some of the accumulated carbon dioxid. The favorable action of the insufflated oxygen may be explained in various ways. It may simply be due to the presence of the oxygen in the blood serum in greater quantity, as a consequence of the greater oxygen tension in the alveolar air. It may be further assumed that in certain pathologic conditions the hemoglobin is not saturated with oxygen and therefore takes it up readily from the serum, and furthermore, in certain stages of the disease the oxygen thus taken up may be retained by the hemoglobin for shorter or longer periods even after the oxygen tension in the alveolar air and in the serum is again reduced. The same may perhaps be said of the other vital body cells; the nerve cells of the medulla and the cells of the circulatory neuromuscular apparatus. In the course of a disease either the cells are gradually receiving less and less oxygen, or they gradually lose the capacity for storing up oxygen, or both. There are other possibilities; but I shall not merely speculate as to which of these possible factors were the effective elements in the observations previously mentioned. But I shall point out the following facts. In one case of pneumonia the cyanosis returned immediately when the oxygen insufflation was stopped. In this case surely the vital cells had no longer any storing capacity. This patient died one hour after the insufflation was installed. In the case of another patient the insufflation had at first a marked after-effect when the insufflation was discontinued, but gradually this storing capacity disappeared and the patient was kept alive for several hours longer by continuing the insufflation without intermissions. In this patient, when the insufflation was first begun, some degree of storing capacity of the vital cells for oxygen was still present, but it was on its down-hill course, which the oxygen insufflation could neither revert nor stay. In my first patient each series of insufflations was followed by a period of freedom from cyanosis. These periods were short, but for five hours the periods did not become shorter; "the patient held his own," and he died suddenly when the period before oxygen could be again administered became too long. In this patient the down-hill course was stayed; whether it could have been reverted by further administration of properly timed insufflations of oxygen was at that time more than doubtful. But the condition of the fourth patient, who actually recovered, was, when first seen, as grave as that of the last patient. Nevertheless, the rhythmic oral insufflation of oxygen not only stayed the down-hill course, but undoubtedly assisted in reverting it to normal.

To recapitulate briefly: Four cases of pneumonia due to pneumococcus Type II were treated by oral insufflation of oxygen. In all cases the treatment began when the condition of the patients was already very grave and apparently hopeless. In all cases the cyanosis improved soon after the insufflation was started. In one case the cyanosis returned immediately after the insufflation was stopped. There was apparently no more storing capacity whatsoever for oxygen. That patient died one hour after the beginning of the treatment. In the second case there was at the beginning a definite storing capacity for oxygen which, however, gradually disappeared. The life of that patient was then kept up for several hours by continally administering the (rhythmic) insufflation of oxygen. In a third case the storing capacity was small but remained unchanged for five hours. The patient died during a prolonged period when oxygen could not be readily procured. The fourth case, which practically was as hopeless as any of the foregoing, showed a definite reversion in the direction of recovery about two hours after the treatment by means of oral insufflation of oxygen was begun.

It seems justifiable to assume that the period of definite cyanosis is preceded by a more or less long period during which the capacities for taking up oxygen, and storing it, by the vital cells, are gradually getting impaired; and it is further justifiable to assume that during early pathologic periods the insufflation of oxygen may be capable of restoring these capacities to their normal extent more frequently and efficiently than during later stages. The early insufflation might thus be the means of preventing the disease from reaching the stage of cyanosis. In other words, early administration of oral insufflation in pneumonia and similar diseases may prove to be a real therapeutic measure. In normal conditions the individual inhales air which contains about 30 per cent. oxygen above the physiologic need. This surplus presents the factor of safety for the healthy, moderately active individual. During sickness that gradually leads to respiratory insufficiency, the loss of the capacity of the vital body cells for taking up and storing oxygen, the factors of safety for this vital gas ought to be then considerably larger than in normal conditions. It is true that, experimentally, we shall be the ers. If the patient recovers under early administration of oxygen insufflation, we shall in most cases be ved of the absolute evidence that the recovery was ctually due to the treatment. But we must give the benefit of doubt to the patient.

I recommend, therefore, that in pulmonary and cardiac disease oxygen should be administered by means of the oral insufflation several times a day at an early period when there is not yet an urgent necessity details in ygen should not be considered as a terminal gratifying one. he other hand, it ovember, 1916, Dr. Cole, the director of the hospital, telephoned to our laboratory asking me to come over and administer for it. With my apparatus to a measure. On that I would again to be emphasized that oxygen should not be considered as a specific, and its use should by no means eliminate the use of other promising remedies. On the contrary, oxygen may make the body cells more amenable to the curative action of other therapeutic agents. Furthermore, the oral insufflations offer a chance to other therapeutic agents to develop their favorable action.

THE PLACE OF INFANT WELFARE IN PUBLIC HEALTH INSTRUCTION *

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BALTIMORE

Hygiene has been defined as that department of knowledge which concerns the preservation of health. It not only includes the various branches of the so-called medical sciences, but lays tribute on any knowledge or practice which may be serviceable in combating disease and in promoting health.

It is the fundamental duty of all governments to provide for the safety of their people, even at the sacrifice of individual right, liberty and property. This function is exercised under the common law as a police power, and implies the right of a government to secure for its subjects healthful living conditions. Under the government of the United States, the authority for this sanitary provision is vested in the separate states, rather than in the federal government. The latter exercises its right of control only in exceptional cases, namely, in interstate traffic, in cases of threatened general epidemics, and in maintaining advisory authority over quarantine. This federal control is exercised through the Public Health Service, a branch of the Treasury Department, while supervision over food and drugs is under the control of the Department of Agriculture; whereas the vital statistics, which form so fundamental a part of all public health work, is a division of the Bureau of the Census of the Department of Commerce.

Prior to the nineteenth century, boards of health were organized in the larger cities along the Atlantic coast, but little was done except when outbreaks of severe epidemics required that unusual steps be taken to control them. Later, local boards of health were formed in other inland communities; but the first state board of health was organized in Massachusetts, in 1869. Since then, in practically all the states, some duly authorized body has had charge of matters pertaining to public health. In many states there are laboratories where various examinations are made for physicians practicing in the state. In the laboratories of other states valuable research work is being carried on.

The functions of the state boards of health have been developed in a haphazard rather than an orderly fashion. Each state has gone its own way, often regardless of the experience of other states and countries, and much time, money and labor have been wasted because of lack of cooperation. This is in no small measure due to the domination of politics and to the fact that there exists in the United States a serious lack of trained and experienced hygienists.

To supply this need for competent workers in public health, a number of medical schools are offering more or less extensive courses in preventive medicine, and there are a few thoroughly equipped institutes of hygiene.

In connection with ten medical schools, at present, graduate courses in public health have been established. Seven of these schools give the degree of Doctor of Public Health, three after a two years' course, and four after a one year course. The degree of Certified Sanitarian is given by one university, after a one year course, to graduates of arts and sciences. The degree of Master of Public Health is conferred by two medical schools, and the degree of Master of Arts of Public Health, or Master of Science of Public Health, is given by three other universities, and the degree of Graduate of Public Health by one.

The subjects considered in one of the more complete courses in public health include preventive medicine and sanitary science, consisting of epidemiology and tropical medicine; personal hygiene, having to do with choice of foods, ventilation, exercise, sleep, etc.; industrial hygiene; public health administration; sanitary biology and chemistry; communicable diseases; sanitary engineering; demography; eugenics; infant mortality; school hygiene, and tuberculosis and venereal prophylaxis.

Even such a cursory summary of information to be obtained at a well established school of hygiene must convince physicians and intelligent laymen of the value to the future well-being of the country of the propagation of such knowledge; and all physicians will admit that but a small proportion of this knowledge, in its relation to public health, is given in the ordinary medical school curriculum. In other words, it has become evident that preventive medicine is a distinct, specialized science, offering unusual opportunities of service to those well equipped students who care to pursue it.

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* Read before the Section on Preventive Medicine and Public Health at the [illegible] Annual Session of the American Medical Association,

When we consider that there are constantly about 3,000,000 people sick in the United States, involving an annual financial loss of more than $500,000,000, and that a considerable proportion of this illness is preventable, it is readily understood that preventive medicine offers a field almost unique in its service to humanity.

It is the purpose of this paper to present briefly the importance of infant welfare work in any properly considered and thorough instruction in public hygiene.

Several general facts in reference to infant mortality would seem, of necessity, to place infant welfare work, that is, all efforts to reduce infant illness and death, in the van of any movement having to do with public health. These facts are briefly as follows:

Eighteen per cent. of the total mortality of all ages occurs under 1 year. Infant mortality can be reduced by known methods, from one death within the year, to every five babies born (which is the rate in many portions of the country), to one death in every twenty babies born, which is the rate under satisfactory hygienic conditions, and which means the saving each year in the whole country of approximately 200,000 lives, a larger number than would be saved by the complete eradication of tuberculosis. If the capitalized value to the state of an infant life is, as has been claimed, $5,000, the loss of wealth represented by this human wastage can be roughly estimated. It is to be emphasized, too, that babies who come healthily through their first year look forward to a much longer life expectancy than do the cured patients from any illness.

As has been well said by Dr. Woodward of Washington:

> The day has gone by when the public health officer can look on the abating of nuisances and the control of preventable diseases as the chief part of his duty. Infant mortality presents as great a problem for the health officer as does smallpox, scarlet fever, infantile paralysis, school hygiene or anything else.

In presenting the subject of infant welfare to students of hygiene, three distinct lines of approach should be followed. In the first place, infant welfare must be studied in relation to other branches of hygiene, of which it is an integral part. Therefore, much that should be taught in the general curriculum of such a school requires no duplication in presenting the subject of infant welfare, except that the relation of the latter to the subject considered must be emphasized. For it is true that nothing is done in the community to improve health conditions in general which does not help the baby. Thus, for example, vital statistics, particularly birth registration, form the foundation of any intelligent infant welfare work. These subjects would, of course, be presented in relation to other matters of public health. The same can be said of general sanitation, housing, water supply, milk supply, and of industrial occupations and venereal disease in their relation to the health of the infant. Secondly, measures already in operation should be thoroughly studied and compared, and those best suited to any given community should be determined. For example, in some cities distribution of modified milk, or the encouraging of day nurseries, or the licensing of midwives, may be distinctly advantageous, whereas in other cities they might be harmful. Thirdly, not only should we "prove all things and hold fast to that which is good," but an institute of hygiene offers incomparable opportunities for ascertaining new facts which should lead directly to the saving of infant life.

In suggesting a brief outline for the study of infant welfare, I avail myself, among other sources, of the *Transactions* of the Association for the Study and Prevention of Infant Mortality, and of many valuable suggestions of Miss Knipp, its executive secretary.

It would seem that infant welfare falls naturally into two main divisions, one of which has to do with having better babies born. It presents as an ideal that every conception should result in a healthy baby. This leads at once to a discussion of the science of genetics and eugenics. Here one must tread cautiously, as there is much in theory which cannot be put advantageously into practice. It would seem, however, that the reasons for the prevention of the marriages of the notoriously unfit, and of the segregation or the unsexing of such persons, should be presented from the standpoint of the baby's welfare. Again, the effect of acute and chronic alcoholism, or of the abuse of other habit-forming drugs, in one or both parents, on the well-being of the child should be discussed from a thoroughly scientific point of view. The whole question of syphilis should be studied with special reference to stillbirths, premature births, and lowered infant vitality. The effect of tuberculosis in parents on the vigor of the offspring must be presented; likewise the effect of factory work, or hard manual occupation, on the part of the pregnant woman.

Then, in connection with the obstetric department, steps should be taken to bring about more skilful, aseptic obstetric practice. The question of training or abolishing midwives in this country, the early registering of expectant women at the obstetric clinics, thorough prenatal care, adequate obstetric service in rural districts, the establishment of obstetric substations under the control of health departments: these and similar subjects having to do with getting babies well born are parts of infant welfare.

A second division of the subject would consist of a study of the causes of illness and death during the first year. These divide themselves into several important groups, which should be discussed separately:

1. *Congenital Debility, Prematurity, etc.*—It has been long known that a third of the deaths in the first year occur in the first month, many of them in the first week of life. The reasons for this are not thoroughly clear, but the data should be collected and carefully analyzed.

2. *Digestive Diseases.*—It is in this group that nearly all the progress made in recent years, in reducing infant mortality, has taken place. The various plans carried out in this country and abroad which have resulted in the reduction of disease and death from digestive disturbances should be presented from a historical point of view, and those means which are most efficient and best applicable to our own conditions should be pointed out.

3. *Diseases of the Respiratory Tract.*—This group of ailments presents now a danger to the infant practically equal with the diseases of the intestinal tract; but little light has been thrown on the subject, and much of our knowledge of the spread of pulmonary infections has not been made use of in pediatrics.

4. *Acute Infections.*—Fortunately, the baby leads a partially isolated life. It is peculiarly susceptible, however, to infections, and should be protected from them. When infectious diseases are controlled among

schoolchildren, through proper sanitation and health administration, the infant will be the gainer.

Other conditions, resulting in the destruction of infant life, including deformities or defects in development, are little understood, but are almost negligible compared to the loss of life from the conditions already referred to.

Another group of babies among which there is a high mortality, and which require unprejudiced, tactful treatment, are the babies at present reared in institutions, many of whom are of illegitimate birth. The reception of these children by institutions began in the seventeenth century, under the advice of St. Vincent de Paul. This practice has tended to increase both illegitimacy and infant mortality. No better illustration could be given of the fatal partnership of good intentions and wrong methods, and it is on questions such as this that the impartial balanced judgment of an institution devoted to scientific hygiene can be of incalculable value. It is important to show to future health officers that immorality is checked, the mother's self-respect restored, and many sturdy infant lives saved, by keeping mother and baby together during the early critical months, and in helping her to secure remunerative occupation amid sympathetic surroundings. We need unprejudiced investigation of the mental capacity of many of these unmarried mothers. We need, too, a light on the notoriously large mortality in institutions, and directions as to the best methods of reducing it, or of substituting foster homes for children bereft of parents.

A large number of other topics must be considered in any complete outline of courses on infant welfare. Some of them are:

1. Study of the milk supply of a community in relation to infant welfare. This could be carried out in connection with other courses in sanitary milk production.

2. Maternal nursing, in its relation to infant mortality, particularly in the homes of the indigent.

3. Housing conditions, which are of fundamental importance in the well-being of the infant. In this connection it should be stated that in any institution situated in a southern city special emphasis must be laid on the health conditions among the negro population. In view of the fact that the negro presents more than double the white death rate and morbidity rate, especially for infectious and venereal diseases, this race constitutes a problem of its own in which infant welfare plays a vital part. The negro needs more sympathetic and kindly, but firm, treatment, and less exploitation. Their low living conditions in many parts of the South, the prevalence of infectious disease and puerperal fever among them, and the kind of food they give their children leaves everything to be desired; and yet there are 10,000,000 of them among us, thus constituting more than 10 per cent. of our total population. It is estimated that about half a million of this number are constantly ill, thus entailing a loss of millions of dollars in the communities in which they live.

Another subject in which the infant is gravely concerned is the wage of its parents. Insufficient income and the resultant low standard of living are always associated with high infant death rate. This has been shown by a number of recent investigations, notably in Johnstown, Pa., where the infant mortality in families earning less tha $10 a week was more than 200 per thousand, while, hen the income was more than $25 per week, the infant mortality rate was about 80 per thousand. These and similar facts demand careful attention, not only in an institution of hygiene, but also on the part of sociologists. Can they be met by the gradual raising of the standard of our wage earners, by a system of health insurance, or will the working men in America, as in other countries, eventually limit the size of their families? Low wages for the men of the family make it necessary, of course, for the women of the family to work to avoid starvation. This results in absence of the mothers from home and in the neglect of the children. It is interesting to recall that in Lowell, during a strike, when the mothers could not work, infant mortality was reduced; and that during the siege of Paris, when the general mortality was doubled, the infant death rate was halved.

5. This leads to a consideration of what is perhaps the most important element in the welfare of babies, namely, intelligent care on the part of their mothers. No outline of courses having to do with infant welfare would be worth while that did not stress as perhaps its pivotal point the importance of the education of the present and future mothers of the country in those matters pertaining to the feeding and care of their children. If this instruction can be given in all our schools, and the social conditions can be adjusted so that wages compatible with decent living are possible for all families that are willing to work, much of the infant mortality problem would be solved. This education of girls in infant welfare has been carried on, in some form or other, in various parts of the country, for a number of years, in private and public schools, and in so-called continuation schools, and in "little mothers' health leagues."

It is the duty of an institution devoted to hygiene to study the character of this instruction and the results obtained when these girls have homes of their own, and to determine what forms of instruction may be best adapted to particular communities.

The child of run-about age, between the infant and the school boy or girl, also needs special study. He suffers often from neglect, from improper food and clothing, and from the lack of fresh air. Many serious conditions start before school age begins.

The infant mortality movement, as it is generally understood, began in France in 1892 with the "consultations des nourissons" of Budin. From this time on, in an incredibly short period, infant welfare work of various kinds has spread over nearly the whole civilized world. Milk stations have been organized in many large cities, hundreds of nurses and physicians are devoting their time to this form of philanthropy, and divisions of child hygiene have been organized in the departments of health in New York, Philadelphia, Boston and other cities.

The care of the expectant mother is now conceded to be essential for thoroughgoing infant welfare work.

The National Association for the Study and Prevention of Infant Mortality was organized in New Haven, Conn., in 1909, and since then its office has exerted a guiding influence in this whole movement. The *Transactions* of the society reflect the progress that has been made. In 1912 a federal Children's Bureau was established, in which infant welfare work was made a feature. This bureau has made a number of exceedingly valuable investigations on the infant mortality rate under various urban and rural conditions. Divisions of child hygiene have been created in several state departments of health, including New York, New Jersey, Kansas and Ohio.

It should be the purpose of an institute of hygiene to acquaint the students taking infant welfare courses with the history of the movement and with the methods that have been used in other countries and in our own to conserve infant life. New Zealand, with its infant mortality rate of less than 5 per cent., deserves special consideration.

Finally, in many cities, in cooperation with existing agencies, such as the infant welfare associations, the health departments, and the obstetric and pediatric departments of medical schools, it is possible for students of hygiene to obtain a large experience in practical infant welfare work on the field; to see for themselves the many examples of the deleterious influence on the baby of poverty, bad housing conditions, improper food, and ignorance on the part of parents, and to note also the dire results of long institutional life on young infants. These students will thus have abundant opportunity to form their own conclusions as to the efficiency of the various agencies in meeting and correcting circumstances so inimical to infant health.

If the subject of infant welfare work can be presented in some such fashion where instruction in hygiene is thoroughly given, no interested student could receive his degree and take up his public health work in any community without knowing something of the value of infant life and something also of the measures best adapted to promote it.

At this time of stress and danger, when the youth of the land are about to offer themselves for the service of their country in battle and many of them may be called on for that last measure of devotion, it is especially timely that all efforts tending to improve the health of the people should be fostered, and particularly is it vital that the infant population, on whom in due time the future of our nation must depend, be carefully enumerated and conserved.

ABSTRACT OF DISCUSSION

Dr. William H. Welch, Baltimore: The most promising line of attack on the prevailing death rate is to control the diseases of childhood. We can accomplish more there, make more impression, and it makes a stronger appeal than anything else, I think, on the community at large.

As regards the relation of school hygiene and public health to this work, that, again, seems to me so apparent that it requires no particular emphasis. As to the details of that I am hardly prepared to speak. It is obvious such an institution must be in close connection with the pediatric clinic during the organization of the service of the schools or hospitals, which have been such a tremendous accession for our municipal and state departments of health, especially in the work that the Public Health Service has done in that connection, and with all the official and voluntary organizations, of which we have so many. Those who are studying in this field should have every opportunity. Perhaps I should like to emphasize as much as anything, although it is only one of the many functions of school hygiene, the importance of increasing our knowledge on the subject. While it is true that we do not apply, or begin to apply, all that we know, nevertheless the whole field is full of still open and unsolved problems; and nothing is more certain than that failure revolves around this, when we attack the problem of controlling a given disease without spreading active knowledge as to the mode of origin and the spread of the disease.

I should like to know a little more of why it is that there is such a tremendous difference between the so-called individualized care of the infant at home, boarding out, and in institutions; and I expect that field can be narrowed a great deal more than it has been.

Dr. Henry Dwight Chapin, New York: There was one question raised by Dr. Welch as to the cause of the difference of the mortality in boarded out babies and in institution babies. There are several causes that favor the high mortality of institutions for the baby; and here is the proper point at which this question must be attacked, and successfully attacked; the very high mortality in infants can be checked right there. First is the lack of a sufficient number of attendants. Babies are brought into the world singly, and not in droves; and they are not intended to be cared for in great masses. And the second reason is, they do not get enough fresh air. They lack a sufficient supply of fresh air that very few institutions can give them. Third, they lack a mother; and if they cannot get their own mother, they ought to have somebody else's mother. The subject of boarding out has not been sufficiently studied, nor sufficiently systematized. If the same work, the same attention to detail, the same study were given to putting these little babies into homes as is given to institutions, we would cut the mortality in half at once. They must be boarded out in units, under the constant supervision of a physician and nurse who are familiar with this class of cases and competent to deal with it. The Speedwell Society has successfully operated along these lines for the past fifteen years.

Dr. Rowland G. Freeman, New York: I do not want to discuss the excellent paper of Dr. Knox so much as I want to say a word for institutions. All the evidence that we are getting now from people studying these infant problems is in favor of the boarding out of children. I myself feel that an institution is the best place for a child, if it is a good institution. We have our old institutions that had 100 per cent. mortality; we have, more recently, institutions with 20 to 30 per cent. mortality; and we have other institutions where we keep the children out of doors, where we have plenty of nurses, and where children do better than they do in their homes; and I am in the habit, with difficult cases, of sending them to a hospital where they can have good, fresh air, proper food, and good nursing, and they do much better than they do in the homes. The institution has to exist as a clearing-house for babies. It is all well enough to board them out; and I believe that is the best solution for the large proportion of the babies coming to our institutions; but you must have the institutions to receive them and board them out; and you have to have the institutions to take care of them when sick. One reason why large institutions are rated as having such a large mortality is because all of their hundreds of boarding-out children when they get sick come back to the institution and the institution, not the boarding-out home, where they become sick, is credited with their deaths.

Dr. A. F. Hess, New York: I should like to say a word, also, in favor of the institution. I do not believe, with Dr. Chapin, that there is anything inherently good or inherently bad in institutions or in the boarding-out system. They can be well managed, or they can be poorly managed. Now as regards the boarding-out system, there are no statistics which show that it can be better managed than an institution. I have seen mothers who take care of babies, mothers who are licensed by the department of health, whom you would not think of entrusting with the care of babies. It is true that the department of health is now doing much better in this respect. I understand that there are now some 500 who are entirely trustworthy, but we must remember that we need 5,000 such mothers, as there are 5,000 babies to be boarded out. I believe that mothering is a very bad thing for a baby; mothering often leads to tuberculosis. I find at the Preventorium that a great number of the infants have developed tuberculosis from contact with the mother who had an open tuberculosis. Furthermore, it is not infrequent for babies to develop colds, pneumonia and die owing to the fact that the mother has had a cold. I have therefore come to believe that a baby is much better off if left alone and not mothered too much. We should not be too radical or destructive. There may be good boarding-out systems and be good institutions; let us make use of the good and abolish the poor ones.

Dr. J. H. Mason Knox, Jr., Baltimore: The institutional care of young babies is a question of the character both of the institution and of the foster home. In institutions as constructed years ago and which have an inadequate number of poorly trained attendants, the infant mortality is frightfully high; much higher than in even indifferent foster homes.

The term "mothering" has been objected to on the ground that it may imply too much fondling. We might perhaps better substitute the phrase, "individualizing care." I agree with Dr. Hess that too much unintelligent mothering is a great disadvantage; but I believe that the baby, absolutely dependent, as it is, on others, does best when it has individualizing care; this cannot be obtained unless there is one caretaker for every three or four children. When this is furnished so that the babies' wants are promptly supplied, and there is abundant air space and quiet, it really does not make much difference whether the baby is in an institution or in a foster home.

SIMPLIFIED TECHNIC IN LAMINECTOMY*

WITH DESCRIPTION OF COMBINED LAMINECTOMY AND SPINE FIXATION BY BONE TRANSPLANT

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The operation of laminectomy has become so well standardized that one feels a certain hesitancy in presenting modifications. However, the technic that I have employed during the past few years has been found rather simpler than that of methods previously described, so that a description of it appears warranted.

Briefly, the essential point lies in the fact that instead of stripping the soft parts and the periosteum from the posterior vertebral spines on either side and then cutting off the spines at their bases, the spines are split longitudinally into right and left halves, just as in the Albee operation for insertion of a bone transplant in Pott's disease. However, instead of deflecting the halves on one side only, as in the Albee technic, the split halves are deflected on both sides. It is then a very simple matter to separate the periosteum with attached soft parts from the laminae as far laterally as the articular processes. The posterior spines should be split well down to their bases. There is then left only a small remnant of the process to be cut away with bone cutting forceps. The cutting away of the laminae can be accomplished by any one of the numerous methods advised.

Details of Technic.—The first steps are like those in the Albee spine fixation. A curved incision is made slightly to one side of the row of posterior spinous processes through the skin and subcutaneous tissue. The flap is rapidly reflected, exposing the deep fascia on either side of the middle line. With a stout knife, a straight incision is made down the middle line, splitting the supraspinous ligament and incising or at least marking the tips of the spinous processes themselves. A tenotomy knife is now used to dip down between the individual spinous processes, dividing the interspinous ligaments. With a very thin chisel the spines are now split through the line indicated, care being taken to keep as close to the middle line as possible. On reaching the base of the spinous processes, the chisel is driven slightly to one side, and the corresponding halves are broken and deflected to that side. With a gauze sponge over a periosteal elevator, the periosteum is now stripped from the corresponding laminae to the articular processes. This is easily and quickly accomplished without injury or fraying of the periosteum with the clean start obtained, as just indicated. It is the ease and rapidity with which this can be done, and the relatively slight hemorrhage encountered as compared with other methods, which particularly recommends this procedure. With a few strokes of the chisel the opposite standing halves of the posterior spines are now broken off close to their bases, and deflected to the side, the periosteum being stripped back as on the opposite side. The next step consists in biting off with suitable forceps the remaining portion of the bases of the spinous processes and cutting through the laminae by any one of a number of suitable methods. The Hudson drill and a number of rongeur forceps of suitable size and shape will answer the purpose very well. After removal of the laminae, the spinal contents are dealt with as circumstances demand.

The closure of the wound is in no way complicated by the method of approach outlined. In fact, the clean cut wound edges showing the split halves of the spinous processes and the split supraspinous and interspinous ligaments offer good opportunity for accurate approximation. When the split spines are not too thick a stout, full-curved cutting needle can be passed directly through the corresponding halves, holding them in firm apposition. This is not necessary, however, as they will be held sufficiently firm by sutures taken through the periosteum or the dense ligamentous tissue above and below. A few intermediate sutures serve to unite the interspinous ligaments. The preservation of the spinous processes, so far as they have been split, though by no means an essential to firm union, may be regarded as a distinct advantage in securing greater firmness and accuracy in closure.

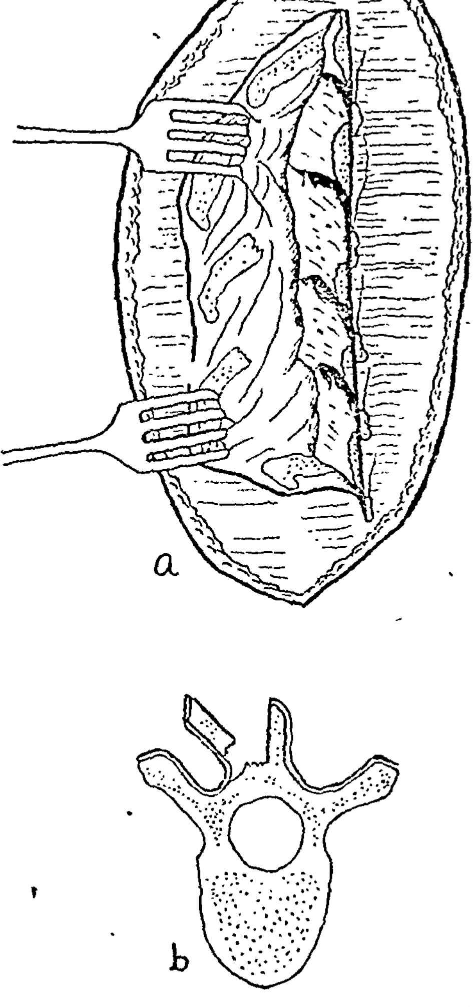

Fig. 1.—Posterior spinous processes (*a*) split in the middle; the left halves are deflected with the periosteum, leaving the denuded laminae on that side exposed; the right halves remain standing; *b*, cross section, showing splitting of posterior spinous process and denudation of lamina on left.

In one instance, when a laminectomy was done for fracture of the fifth cervical vertebra, death occurred some six weeks after operation from ascending kidney infection and trophic ulcers. The laminectomy wound had healed perfectly and the split halves of the spinous processes were firmly adherent to one another, though with a little force they could be separated with a snap, showing that bony union was well under way.

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* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

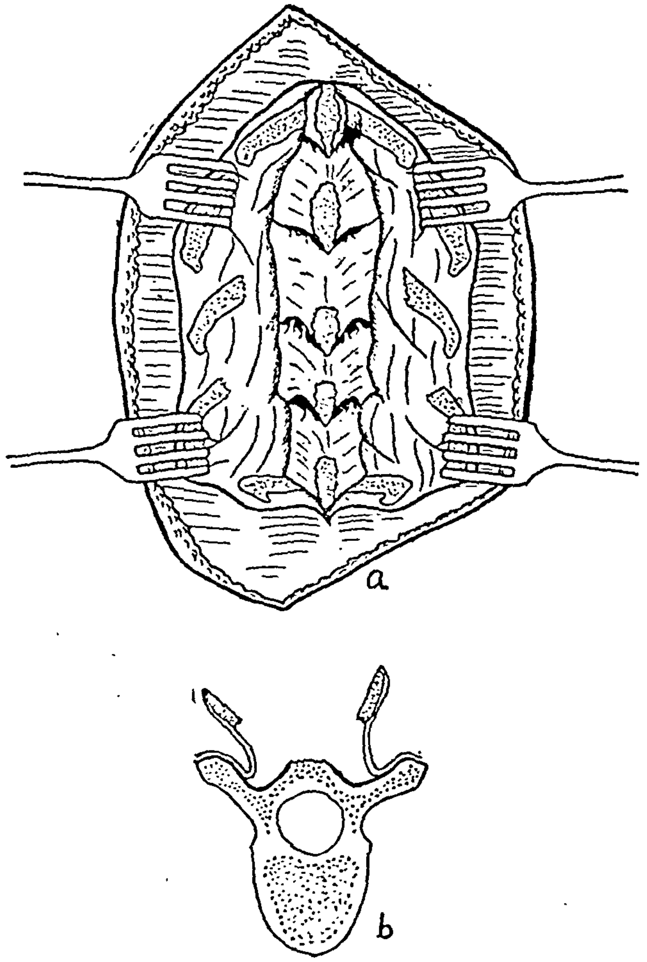

Fig. 2.—Broken spinous processes (*a*) deflected on both sides, exposing denuded laminae on both right and left; *b*, cross section.

The advantages of the method of approach, outlined above, are: (1) rapidily; (2) diminished trauma; (3) diminished hemorrhage, and (4) more accurate and firmer closure, by virtue of the union of the bony components.

In certain instances, after laminectomy for urgent cord pressure symptoms, it may be desirable to fix the spine by means of a tibial transplant immediately after decompression of the cord. After the usual operation practiced heretofore, in which the spinous processes are sacrificed, a bridging over of the laminectomized area by means of a tibial graft would be a hazardous proceeding, the graft receiving bony contact only above and below the laminectomized region. This hazard would naturally increase with the length of the laminectomized area. It may be regarded as a universally accepted fact that a bone graft has far better chances of becoming firmly united if it is in contact with numerous healthy bone surfaces. The method of approach, indicated above, by preserving the spinous processes and therefore retaining the usual number of bony contact points, paves the way for a successful combination of laminectomy and spine fixation by means of the bone graft. This plan was carried out in two cases, in both of which a diagnosis of vertebral tuberculosis had been made with urgent cord symptoms. After decompression of the cord, by laminectomy, performed according to the plan just outlined, several healthy spines above and below were split after the usual manner. The left halves were deflected while the right halves remained standing. A graft of sufficient length was then cut and put in place, bridging over the laminectomized area and finding anchorage above and below on the standing halves.

In both instances, primary union was obtained. In the first case, one with a middorsal lesion, the spine is held perfectly rigid, the graft fulfilling its mechanical function perfectly. In the second, a case of cervical Pott's disease with urgent symptoms, death occurred about four weeks after operation from an ascending urinary infection.

To be sure, indications calling for the employment of this combination of procedures will be encountered only rarely. Traction and recumbency in the hands of most orthopedic surgeons will prove adequate in the vast majority of cases, but in certain cases of Pott's disease, possibly also in some cases of fracture of the spine, a combination of the two will be found desirable. The experience in the cases just reported would indicate also that the method is feasible.

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ABSTRACT OF DISCUSSION

Dr. Edwin W. Ryerson, Chicago: My experience with this operation is confined to one case, which I had recently, for fracture-dislocation of the spine. The procedure of Dr. Gaenslen was not exactly followed, in that I used a motor saw to split the spinous process, thereby causing less traumatism than when the chisel and mallet are used. The operation was nearly bloodless, much less hemorrhage being encountered than when the spinous processes are exposed and cut away by the rongeur. This procedure is the more valuable, as it gives an opportunity to put in a bone splint in cases of pressure on the spine caused by tuberculosis. These cases do not often require laminectomy; but when they do, one would hesitate to do a simple decompressive laminectomy, if there were no possibility of fixing the spine afterwards; but with one of the tibial splints, we may properly hesitate less to do it than in the past.

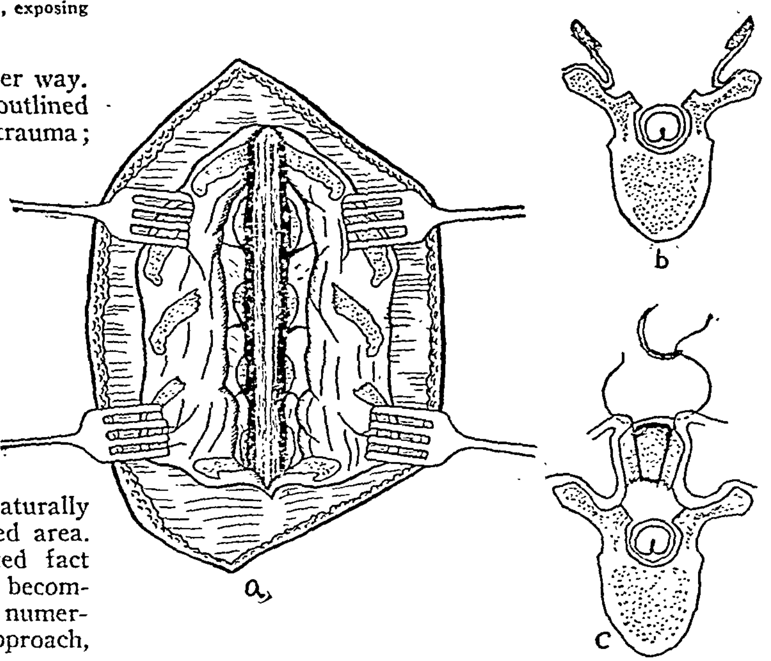

Fig. 3.—Laminae removed (*a*); cord exposed; *b*, cross section; *c*, cross section of vertebra in laminectomized area, showing bone graft in place and suture introduced.

OPERATIVE TREATMENT OF TUBERCULOSIS OF THE KNEE JOINT IN ADULTS*

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AND
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Tuberculosis of the knee joint in adults differs in two important points from the same disease in children.

1. In children we have centers of growth in direct anatomic relation to the joint. Disturbance of these centers by the disease or by operative interference may seriously affect the ultimate length of the limb. This condition requires consideration and treatment.

2. In children there seems to be a more marked resistance to the disease than in adults, and cures with only slight disturbances of function often occur when persistent and continuous local fixation is combined with general treatment by heliotherapy and an antituberculous regimen.

In adults, the disease when once established, in our experience, may be said never to recover fully without operative interference of some form.

We realize that this is a sweeping and dogmatic statement, but we have yet to see a tuberculous disease of the knee joint in which the diagnosis has been conclusively established by means of tuberculin tests showing general and local knee joint reaction, by means of examination of tissue removed for purposes of microscopic study, or by means of positive guinea-pig inoculation of fluid removed by aspiration, gain a lasting recovery without operative interference.

DIAGNOSIS

We do not believe that the diagnosis of tuberculosis of the knee joint in adults can with certainty be made in the early stages of the disease from clinical examination alone. Several other monarticular affections may well be mistaken for it; a gonorrheal infection of subacute character; a syphilitic infection; a villous arthritis; a simple chronic synovitis of unknown origin, or a chronic traumatic arthritis.

We shall not attempt to indicate the important points in the differential diagnosis, but rather to emphasize the fact that in our opinion it cannot at times be made without the help of the laboratory tests enumerated in the foregoing. It is fair to say that any rather subacute affection of the knee joint, in which the subjective symptoms are often intermittent and which objectively is characterized by a persistent but variable change in the external contour of the joint and an atrophy of varying degree of calf and thigh, should be considered to represent tuberculosis of the knee joint unless there exists proof to the contrary.

We have become convinced that tuberculosis of the knee joint in adults is at times primary in the synovia. Our belief is based on the failure to find evidence of bone involvement by careful Roentgen-ray examination, by macroscopic examination at operation, by subsequent recovery as the result of arthrotomy and the injection of 4 per cent. iodoform and olive oil emulsion, and on the positive evidence of tuberculosis of the synovia by microscopic examination and the positive inoculation tests of guinea-pigs with the removed tissue or joint fluid.

TESTS

We have found the von Pirquet test to be of only negative help in excluding tuberculosis.

If the patient has no elevation of temperature and is placed on a two-hour chart, and if he reacts to a subcutaneous injection of Koch's old tuberculin by a slight or marked febrile rise and an increase in the local joint symptoms, as indicated by greater sensitiveness, added heat, or both, we believe an almost positive diagnosis of tuberculosis of the knee joint may be made. It is the practice of the clinic with which we are associated to begin with an injection of 0.1 mg. If no reaction occurs in two days, an injection of 1 mg. is given. If still no reaction, two days later an injection of 3 mg. is given, and if there remains no reaction to this and to a last injection of 5 mg., we consider the test to be negative.

We have no statistics as to the percentage of cases later proved positively to be tuberculosis in which this test fails to give any local or general reaction. We know that we sometimes fail to obtain it, but our impression is that the percentage of failures is very small.

ROENTGENOGRAPHIC EXAMINATION

The diagnosis by roentgenogram is often confirmatory, but opinion should in few cases be made conclusively from this evidence when considered alone. Tuberculosis is a destructive process, and when the bone is affected, loss of substance will often be shown; but when the disease is creeping in beneath the articular cartilage, it may not be evident in the roentgenogram. There is occasional lime salt deposit beneath the periosteum. Typically there is a hazy appearance of the articular surfaces.

The Wassermann reaction and the gonococcus complement fixation reaction are done as a routine in this clinic.

OPERATION

It is our belief that an operation should be contemplated as soon as the diagnosis has been made. It is often wise to defer the operation in a case in which there has been no fixation and in which the knee is in a more or less acute and irritable state. Such a patient should be put at once at complete rest and freedom from weight-bearing for perhaps a month, and when the acuteness of the disease has subsided, the appropriate operative procedure may be more safely executed, with less postoperative reaction.

Only two types of operation have for many years been considered in the clinic: the one conservative of function and representing little or no shock, attempting to cure the disease by keeping synovial surfaces apart and bathing them in an antiseptic oil; the other destructive of function, a major operation, attempting to cure the disease by destroying the joint and eliminating the synovial membrane and the red bone marrow.

When we believe that the tuberculous disease exists only in the synovia, we have been advising our adult patients to submit to an exploratory arthrotomy through a 3 inch lateral incision, and if no bony disease can be found at operation and the macroscopic findings are consistent with tuberculosis, we have been injecting a bland olive oil containing 4 per cent. of iodoform after the method of Brackett.[1] A considerable number of these patients (eight out of thirty) with tuberculosis of the knee have apparently been cured in his hands and able to regain function. For the technic of the operation, the reader is referred to Brackett's carefully written and excellently illustrated paper. Suffice it to say that from 1 to 5 ounces of the 4 per cent. iodoform oil are injected after the joint has been opened, the fluid evacuated, and the adhesions and pannus, if it exists, carefully separated. The deeper layers of the capsule and the synovia are closed by a continuous stitch from each end, a small opening being left in the middle for the nozzle of the glass syringe. A special double loop lock stitch is inserted and pulled tight about the nozzle, and the oil injected with considerable tension and the lock loop pulled home. Oil has been recovered from the joint eight weeks after the operation in an apparently unchanged condition.

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* From the Orthopedic Department of the Massachusetts General Hospital.

* One patient was operated on at the age of 17; the others were 18 to 54 years of age, respectively.

* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Brackett: Boston Med. and Surg. Jour., June 4, 1914, p. 873.

TABLE 1.—CASES OF BONE AND JOINT TUBERCULOSIS TREATED FROM THE OUTPATIENT DEPARTMENT OF THE MASSACHUSETTS GENERAL HOSPITAL FOR TEN YEARS UP TO 1917

	No.
Total cases treated in outpatient department	239,867
Total cases treated in orthopedic department	20,079
Cases of bone and joint tuberculosis	1,336
Cases of tuberculosis of knee treated in outpatient department	206
Cases of tuberculosis of knee treated in orthopedic department	181

For the detailed after-treatment, the reader is again referred to Brackett's article. Complete fixation is never employed, though the patient bears weight in a split cast only after several months. The cast is removed every day for gentle passive movements. Sometimes two, and in a few cases three, injections are given if we can obtain no evidence of the involvement of the bone and the evidence of active synovial disease still exists.

If the evidence presented shows that disease of the bone exists, we have come to believe that excision is the procedure to be unqualifiedly advised. As we have said previously, if the disease is acute there should be an initial period of complete rest and fixation, but we have never seen permanently satisfactory function restored in a knee joint in which tuberculous disease has involved the bone. The disease often becomes quiescent under complete fixation, but subjected to use without protection, these apparently healed joints light up, and the disease advances, though the history may extend over a period of years.

We do not maintain that there never has existed a permanent cure of tuberculosis of the knee joint which has involved the bone, without an excision or an erasion or some procedure which obliterates the joint, but we do say that we have never seen one, and until we do we shall continue to advise for these cases excision as the method of choice.

Technic.—In discussing the technic of the operation for excision of the knee we shall describe that which after a period of years has seemed to us the more useful. The most careful two day or three day preparation of the skin is given. A tourniquet or an Esmarch is applied.

Incision.—A wide U-shaped incision is plotted by making three or four small skin scratches which will run at right angles to the U-shaped skin incision. Through these the main incision is made, and by matching the skin scratches, eventual nice apposition of the skin is made easy. The incision is carried down to the bone, from condyle to condyle, through the patellar tendon. The patella and flap are pulled upward, the crucial ligaments cut as the knee is flexed, and the whole joint cavity exposed. A quick, moderately complete dissection of the tuberculous tissue is carried out, and the patella, if badly diseased, is removed. If only its cartilage is affected, the articular surface is removed with a saw, and it is used later as a bone graft.

The really important judgment of the operation must be exercised in determining the amount of bone to be removed and the plane of the cuts. If paper patterns of the bones as shown in the lateral roentgenograms are cut before the operation and the amount of flexion to be desired because of the social conditions of the individual patient be determined, these patterns can be made to indicate in a fairly accurate way the planes of the saw cuts.

The determination of how much permanent flexion it is advisable to obtain for the patient is an important question. It is more than is generally thought to be wise. Brackett especially has called attention to the usefulness of even 45 degrees of permanent flexion in a man with a largely sedentary occupation. With a high sole and heel, walking is not as awkward as would be expected, and is more than offset by ease in sitting.

Our opinion is that in a man or woman with a sedentary occupation, from 35 to 40 degrees of flexion is the position of choice. If the work is to be chiefly ambulatory, from 15 to 20 degrees seems to offer the best functional position.

The bone is removed best with a miter saw, and after the slices have been taken from both femur and tibia, and perfect apposition in the desired position has been obtained, the posterior disease is removed down to the capsule.

We have become convinced that some method of internal fixation of the bone ends is greatly to be desired. Union is certainly quicker, postoperative pain is less, and early union favors early cure. Reference is here made to a study of the end-results of excision of the knee made by one of us.[2]

The method of internal fixation by means of bone plates and screws or by the Goddu aluminum wire clamp is satisfactory in many cases. The fact that in a considerable number of cases these plates or clamps had to be subsequently removed did not seem to delay speedy and satisfactory cure of the disease or early firm union. Two flat vanadium or plain steel plates have been most commonly used, placed laterally on the inner and outer sides. These plates may be quite accurately shaped before operation by cutting out a paper pattern of the anteroposterior roentgenogram, performing a paper excision, and fitting the plates to the lateral outlines. There are many cases, however, in which the atrophy of the bones is so considerable that even coarse-threaded wood screws get no grip and the plates offer little if any fixation. In such cases and in certain others (in order to try the method) we have been employing a suture of kangaroo

TABLE 2.—CASES OF BONE AND JOINT TUBERCULOSIS TREATED IN THE MASSACHUSETTS GENERAL HOSPITAL IN THE THREE YEARS PRECEDING 1917

	No.
Total cases treated in hospital	19,423
Cases of bone and joint tuberculosis	321
Cases of tuberculosis of knee treated in hospital	61
Cases of tuberculosis of knee treated in orthopedic ward	55

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[2] Osgood, R. B.: Boston Med. and Surg. Jour., July 24, 1913, p. 123.

tendon, which we believe to be useful. It may be called a "bundle knot tie," and is made with double kangaroo tendon for double strength, less likelihood of cutting, and greater length of tie. With a hand drill, in the end of which is a large eye, while the knee is flexed, a hole is bored straight through the femur from front to back, about 1.5 cm. above the cut surface. It may be necessary with a periosteum elevator to free the posterior capsule upward on the femur and downward on the tibia. With the knee flexed there is no danger of wounding the vessels if the drilling is carefully done. Through the eye of the projecting drill the two ends of a stout kangaroo tendon suture are threaded and pulled back. A second suture is now looped to the first and its two ends pulled through a symmetrical drill hole in the tibia. Next, a hole is drilled through the femur from side to side about 2 cm. above its cut surface, and a double kangaroo suture drawn through. Its looped end is looped to a fourth suture, which in turn is drawn through a corresponding hole in the upper end of the tibia. When the knee is extended and the apposition is accurate, the knots are tied tight and give a surprising amount of fixation. If only the joint surface of the patella has been removed, a bare bone bed is prepared for it and the sutures tied through and over it.

TABLE 3.—END-RESULTS IN SIXTY-NINE CASES OF TUBERCULOSIS OF THE KNEE IN ADULTS TREATED BY OIL ARTHROTOMY AND EXCISION; OPERATIONS DONE ON THE ORTHOPEDIC SERVICE OF THE MASSACHUSETTS GENERAL HOSPITAL, 1907-1917

	No.
Cases of oil arthrotomy	17
Cases of excision of the knee	52
Oil arthrotomy results:	
(a) Apparent cures	4
(b) Improved patients	4
(c) Patients not improved (1 died)	6
(d) Patients lost sight of	3
Means of internal fixation in excisions:	
(a) No internal fixation	1
(b) Bone plates, wire clamps or nails	30
(c) Kangaroo tendon	21
Secondary operations required:	
(a) Oil arthrotomy	4
(b) Excision	4
(c) Reexcision	4
(d) Amputation	7
(e) Removal of plates, wire clamps or nails	14
Number of excision cases with firm union	38
(a) In one month or less:	
Bone plates, etc.	6
Kangaroo tendon	0
(b) In one to two months:	
Bone plates, etc.	4
Kangaroo tendon	2
(c) Three months or more:	
Bone plates, etc.	17
Kangaroo tendon	9
	Months
Average time required for bony union in last 24 cases	9.2
(a) In cases with bone plates, nails, etc.	9.5
(b) In cases with kangaroo tendon	8.25
No record of eventual union (including amputations):	
	No.
(a) Bone plates, nails, etc.	4
(b) Kangaroo tendon	10
Mortality	1
	14
Failure to avert disease:	
(a) Oil arthrotomy (1 patient died)	6
(b) Excision	14
Failure to secure good functional result:	
(a) Oil arthrotomy	10
(b) Excision	14
Successful results as to cure of disease and usefulness of limb:	
(a) Oil arthrotomy	4
(b) Excision	36

Smith-Peterson has suggested that the external and internal portions of the posterior capsule be tightly fastened together with kangaroo tendon when the knee is flexed. This is a reinforcing suture, and when the knee is extended tends to keep the posterior bone surfaces from separating and to prevent the gap so often seen in the early subsequent roentgenogram as gravity tends to extend the leg. When all the sutures are tied, the skin and fat flap is closed with chromic gut in layers without drainage, and the skin with interrupted silk or silkworm-gut. The tourniquet is usually not removed until this has been done, and we do not as a rule find it necessary to tie any vessels. As soon as the bone ends are fixed by the plates or the sutures, an assistant devotes his entire attention to holding the limb in a position in which the close apposition will be maintained; and as soon as the dressing is in place a sterilized sheet iron or steel ham splint, bent previously to the determined angle, is placed beneath the limb, and with the assistant still holding, a plaster is applied from toes to groin. We hope for fairly firm callus in four weeks, we expect it in eight, and we are disappointed if the patient cannot bear some weight with artificial support in three months.

The importance of function in converting fibrous union into bony should be emphasized, cases having occurred with fibrous union for many months which rather rapidly became rigid on beginning moderate function with plaster support.

The general health of the patient often greatly improves when this focus of disease is removed. The operation is not necessarily contraindicated in the presence of visceral disease elsewhere, and we have seen such lesions improve after an excision.

With the kangaroo bundle suture, even discharging sinus cases, if not too badly secondarily infected, may be induced to become solidly united and to overcome their disease.

The occurrence and results of the cases of tuberculosis of the knee joint in adults occurring in the orthopedic clinic of the Massachusetts General Hospital since 1907 are submitted in the accompanying tables.

CONCLUSIONS

1. Tuberculosis of the knee in adults is not fully cured without operative treatment.
2. Primary synovial tuberculosis of the knee in adults exists and is frequently improved or cured by inflation of the joint with iodoform oil.
3. We have seen no permanently satisfactory function restored in cases with bone involvement.
4. Excision of the knee is the method of choice in cases with bone involvement.
5. The position of choice is from 15 to 20 degrees' flexion for ambulatory vocations, and from 35 to 40 degrees' flexion for sedentary occupations.
6. Bone plates, where the bone is firm, and the kangaroo tendon "bundle tie," for conditions in which there is much atrophy, are valuable means of internal fixation.
7. Function is important for final bony union after excision.

372 Marlboro Street—Massachusetts General Hospital.

ABSTRACT OF DISCUSSION

Dr. Melvin S. Henderson, Rochester, Minn.: The operation of dissection of the knee joint has been carried on in the Mayo Clinic for years, and we consider it one of the best types of operation that we have. Taking it all in all, it has been satisfactory, although not all the results are good.

The statement was made in the paper that the authors have never seen a case of knee-joint tuberculosis in an adult cured. I can record two such cases in which the patients got well without operation. The cases were synovial in type, clearly proved to be that by guinea-pig inoculation. Both patients have now been well for over three years. The treatment was by injection of iodoform emulsion in 10 per cent. glycerin, and not by fixation. The time of operation is important. These cases should not be operated on, but made quiescent. The age of the patient is also very important. Generally speaking, a man over 50 years of age is not a good subject for arthrodesis in tuberculosis; and many cases of this kind later require amputation. With regard to fixation, that is an important point. It depends on the social status of the patient, his occupation, etc.

I have this criticism to make of the technic described by Dr. Osgood: It appears to me to be too extensive a dissection. It seems to me important that the patient should not be subjected to a too extensive dissection, and that the operation should be quickly performed, with as little traumatism as possible. I think that some form of fixation is best, however. I had discarded it, but these statements seem to show that it is best. I have used merely one or two long nails driven through the skin below the line of incision, and up through the head and the condyles of the femur, and left projecting. At the end of three weeks I withdraw them.

In regard to the question of tuberculosis in adults, I would say that there must be a sharp differentiation between the synovial type, in which you can cure the condition by means of antiseptic solutions, and cases in which there is bone involvement, in which resection is indicated.

Dr. John Ridlon, Chicago: I should not like to have go to the general practitioners and general surgeons without a protest the statement of the apparent conviction on the part of the authors of this paper that cases of adult tuberculosis of the knee joint are not cured without operation; for I know that they are cured without operation, under prolonged immobilization and protection, the same as in children. I had the opportunity of showing such a case to Dr. Ryerson, who had doubted my statement, a year or two ago; and when he saw the patient and found how good the result was, he thought that it could not have been a case of tuberculosis. Maybe it was not; but the other knee had been excised at Johns Hopkins Hospital, the diagnosis having been concurred in by Bloodgood and Halsted of Baltimore, Gibney and Sayre of New York, and Fenger, Senn and McCarthy of Chicago.

Dr. Mark H. Rogers, Boston: This question of whether a knee recovers without operation or not in adult tuberculosis would seem to be an important one; for if such patients do recover to any great extent or in any great proportion, one does not want to do an excision in the early stage. On the other hand, if there is only probably about 1 per cent. or 2 per cent. of these cases that recover without operation, and it can be proved that they are tuberculosis, a delay in this type of case for three to five years, until there is bone destruction, will probably mean amputation and not improvement or cure. There has not yet been any record, so far as I know, of a cure by fixation. Men come to meetings and say that they have cured such cases by fixation, and that they were cases of tuberculosis; but they have not proved their results by iodoform injection. Their cure, so far as I know, has not yet been substantiated by published results; so until I see published some authentic results of careful observations, I shall still remain of the opinion that in order to get a cure, and a cure without waiting for four or five years and running the risk of having to do an amputation later, it is better to do an excision early, because there have been published authentic records of the absolute elimination of the disease by excision. If you have not obtained cures by the other methods, therefore, the earlier you do excision, the better. That is self evident. What you have to prove is that you can cure these patients without it. In a paper published last year I reviewed the records of over 100 cases. I found that, as far back as I could go, there was no record of a cure by any other method. In regard to the use of iodoform oil, I think it is too early yet to tell whether the patients so treated are cured. A good many supposedly cured cases light up later, and excision must be done. If you wait three or four years before excision, you have very poor tissue to do an excision on.

Dr. James Archer O'Reilly, St. Louis: In speaking of the diagnosis I do not think the paper mentioned the Wassermann test. That was probably an oversight on the part of the authors; because I do not believe that, with our knowledge of syphilis, any one would operate on the knee without having made a Wassermann test. In our clinic I could show several cases of similar conditions of the knee that got well under treatment without operation; but they were cases of syphilis, and not of tuberculosis. Therefore, I think it is very important that the Wassermann test be made.

Dr. Henry Keller, New York: I think it is worth while to mention that there are two classes of tuberculosis, the bovine and the human, and that there is a difference between them. When the infection is due to the human tubercle bacillus, the cases are resistant to conservative treatment, whereas cases of the bovine tuberculosis will ultimately recover, although it takes a few years. I think, therefore, that it is worth while to find out, before resorting to any operative procedure, whether we are dealing with a bovine or a human tuberculosis. If I were sure that I was dealing with bovine infection I should not excise. Such cases should be treated by persistent and prolonged immobilization of the affected joint or joints. I wish to reiterate that these two types of tuberculosis should differ in their treatment, because their prognosis and ultimate results differ.

Dr. Arthur Steindler, Iowa City, Iowa: I should like to ask Dr. Keller whether he has ever seen a case of adult tuberculosis of the bovine type, or has had any unimpeachable evidence of the existence of the bovine type in children.

Dr. Keller: Yes, sir; I have.

Dr. Walter G. Stern, Cleveland: I should like to ask Dr. Bull to explain his method of exploring the entire knee joint through "a simple lateral incision of 3 inches." I cannot see how such an incision will allow one to explore the top of the tibia, both condyles of the femur, etc., which is, of course, quite necessary in such an exploratory arthrotomy.

Dr. E. H. Arnold, New Haven, Conn.: One thing that stands out prominently in the paper is that fixation works very well in these cases, if it supplements excision or any other procedure, which emphasizes the point made by Dr. Ridlon that fixation is, after all, one of the means of cure, and will cover the bovine cases and the Wassermann-test cases, because in all of these it will prove beneficial.

Dr. F. J. Gaenslen, Milwaukee, Wis.: I should like to ask the essayist to go into the question of the results obtained by the Brackett method. We are all interested; and although he suggested that enough time may not have elapsed to allow of formulating the results, we should like to have his impressions regarding the treatment. The speaker mentioned that two weeks after the injection of iodoform oil, he began passive movements. That, I think, will impress most of us as being contrary to the principles involved in the treatment of tuberculosis; and I should like to know how he justifies that proceeding. In speaking of the tuberculin test, he referred to the local or the general reaction. I think that we should have both in all cases. One of the chief difficulties that I have had is in immobilizing the knee securely during the time the plaster is applied, whether a nail is used or not. I think that the suggestion of using a posterior splint is excellent. No mention has been made of the method that Dr. Galloway described before the American Orthopedic Association at Pittsburgh, which consists in freshening the lateral surfaces of the tibia and having periosteal bone flaps from the femur come over the denuded surface, so as to have a more secure fixation. It impressed me as a valuable help in securing early and efficient bony union.

Dr. Edwin W. Ryerson, Chicago: I have said very often that I have never seen tuberculosis of the knee get well without operation. Dr. Ridlon referred to a case that he showed me last year. It was in a woman who, many years before, had had an undoubted tuberculosis of the knee joint, which had been operated on by excision and was cured. Years later she developed what was believed to be tuberculosis of the other knee joint; but this was not proved. As

I remember, Dr. Ridlon applied a plaster-of-Paris splint from the hip joint to the ankle joint, and the knee became well at the end of six months.

Dr. John Ridlon, Chicago: The knee tuberculosis in the right knee was diagnosed by Bloodgood of Johns Hopkins, and the patient was operated on there. The tuberculosis in the left knee developed while she was still in the hospital, and the diagnosis was then made by Bloodgood and Halsted. Wassermanns did not exist at that time; roentgenograms did not exist; rabbit inoculations did not exist. It was simply the opinion of the men in Baltimore, New York and Chicago whom I mentioned that it was tuberculosis of the left knee. It was treated for three or four years, and was not cured in six months.

Dr. Edwin W. Ryerson, Chicago: I think it is only fair to state that this case was not definitely proved to be one of knee joint tuberculosis. Dr. Henderson and others have said that the synovial form may be cured in adults without excision. Of course, everything is possible, and it may be that synovial tuberculosis may be cured without operation, but can a tuberculosis that is active in the bones of the adult knee joint be cured? Personally, I have seen no such case. It seems reasonable to believe that injections of antiseptic substances into the synovial surfaces may cure synovial tuberculosis. I have long hoped that it might do so, but I have seen many cases in my clinic in which we have injected different solutions without any result whatever, except to keep the patient wearing apparatus year after year, and then, at the end of many years, convinced that the knee was not going to get well, I have lost faith in this method of treatment. It has been an almost appalling surprise to me to find how extensive the disease is in many cases. The Central States Orthopedic Club saw in one city a large series of knee joints that had been treated conservatively for five to seven years. Not one patient was well, and all had had a stiff knee for all those years that they had been under treatment; and in my opinion, none of them stands a good chance of getting well without operation.

On the other hand, we have a simple and rapid method of producing bony ankylosis in the position best suited for the individual patient. We can reasonably expect to remove a large part of the tuberculous disease, and we can rapidly make the patient able to go about without apparatus. The majority (I will not say all) of the cases of joint tuberculosis in adults, as differentiated from synovial tuberculosis, will do better, I believe, as we see an increasing number of cases, with an excision done by a competent surgeon. Whether plates or other methods of bone fixation be deemed advisable is an open question. In my hands a long plaster-of-Paris spica from waist to toes has apparently made the patients comfortable and has promoted early union.

Dr. John Dunlop, Washington, D. C.: In reply to what Ryerson has said in regard to diagnosis, and also what Dr. Ridlon said of the early diagnosis of his case, I would say that I was Dr. Bloodgood's assistant for a year and saw a great many of the pathologic knees that were excised. After the possibility of a diagnosis of chronic joint disease became known, which it was not when I worked in the laboratory, they went over all those old excisions that they had made at Johns Hopkins and found that the diagnosis of atrophic arthritis was always being made in place of the diagnosis of tuberculosis. I believe that the case that Dr. Ridlon referred to was one of atrophic arthritis, although at that time all the men in Baltimore were making the diagnosis of tuberculosis in such cases.

Dr. Edward C. Bull, Boston: There seems to have been a misunderstanding. Our statement was that we have seen no recovery of adult tuberculosis of the knee without operation—meaning to include as an operation the injection of iodoform oil. At the time of the dissection of the involved tissues no effort is made to get the diseased portion out completely, but to get out most of the synovia and diseased bone. The Wassermann, gonococcus complement fixation and tuberculin tests are made as a routine; syphilis is therefore eliminated. As to the 3-inch incision in the oil arthrotomy operation, we grant that we cannot get a complete view through this; our observations are based on what we can see and feel, the fingers being run around to break up adhesions. Passive motion is employed very conservatively at first. The capsule is quite distended under the pressure of the oil, so there is little rubbing of the synovial surfaces, and certainly no force is used in the earlier employment of passive motion. Only a very few degrees of motion are employed at first.

New and Nonofficial Remedies

The following additional article has been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application.

W. A. Puckner, Secretary.

HALAZONE-ABBOTT.—Parasulphonedichloramidobenzoic acid.—$C_6H_4(SO_2NCl_2)COOH$-1:4.

Actions and Uses.—Halazone-Abbott is said to be a powerful disinfectant. It is said to act like chlorine, but to have the advantage of being stable in solid form. In the presence of alkali carbonate, borate and phosphate, Dakin and Dunham report that, in from thirty to sixty minutes, halazone in the proportion of 1:200,000 to 1:500,000 sterilized polluted water contaminated with such organisms as the *Bacillus coli*, *Bacillus typhosus*, *Bacillus paratyphosus* A and B, *Cholera vibrio* and *Bacillus dysenteriae*.

Dosage.—For the sterilization of water, 0.004 to 0.008 Gm. halazone, in the form of tablets containing sodium carbonate (or sodium borate) and sodium chloride, is added to 1 liter.

Manufactured by the Abbott Laboratories, Chicago. No U. S. patent or trademark.

Halazone Tablets-Abbott.—Each tablet contains halazone-Abbott 0.004 Gm., anhydrous sodium carbonate 0.004 Gm. and sodium chloride enough to make approximately 0.113 Gm.

Parasulphonedichloramidobenzoic acid was first prepared by H. D. Dakin and E. K. Dunham (Brit. Med. Jour., May 20, 1917, p. 682) under the name "Halazone." It is prepared (1) by oxidizing paratoluenesulphoneamid to parasulphoneamidobenzoic acid, and (2) chlorinating the latter.

Halazone-Abbott is a white powder having a strong odor of chlorine. It is slightly soluble in water and chloroform; insoluble in petroleum ether; soluble in glacial acetic acid, benzene, and with formation of the salt in alkali hydroxide solutions. It crystallizes in stout prisms from glacial acetic acid. The melting point of pure halazone is 213 C.

Halazone-Abbott liberates iodin from a neutral solution of sodium iodide and bromine from a neutral solution of sodium bromide.

If 15 Cc. of a saturated aqueous solution of anilin is treated with 0.05 Gm. of halazone-Abbott, the solution acquires a brownish-red color, which becomes deep blue upon supersaturation with ammonia water.

If 0.1 Gm. of halazone-Abbott is treated with a few drops of concentrated sulphuric acid, chlorine is evolved, but no blackening occurs (readily carbonizable matter).

About 0.150 Gm. of halazone-Abbott (or in the case of halazone tablets-Abbott, 30 tablets), accurately weighed, is dissolved in 100 Cc. of water and 10 Cc. of a 10 per cent. sodium hydroxide solution. Fifteen Cc. of a 10 per cent. potassium iodide solution is added, the mixture then acidified with acetic acid and titrated with tenth-normal sodium thiosulphate volumetric solution. (If the reagents used liberate iodin, the number of Cc. of tenth-normal sodium thiosulphate volumetric solution required for their decolorization should be deducted from the total volume used.) The available chlorine content of halazone-Abbott should not be higher than 26.2 per cent. or lower than 24 per cent. Each Cc. of tenth-normal thiosulphate volumetric solution is equivalent to 0.00177 Gm. of chlorine. The theoretical chlorine content of pure halazone is 26.2 per cent.

Smallpox and Vaccination in Turkey.—Smallpox is especially prevalent in the village communities. More than half the population of such places show the pock marks. The disease does not seem to have a very high mortality in Turkey, but it is the cause of innumerable cases of blindness among children, and in this respect ranks second only to gonorrheal infection. Vaccination is practiced in larger towns and cities and in the army. Only in the last instance it is systematically carried out.—A. R. Hoover, M.D., *The Survey.*

Military Medicine and Surgery

NOTES ON THE CARE OF THE CRIPPLED SOLDIER IN ENGLAND

F. C. KIDNER, U. S. A.
Captain, M. R. C., U. S. Army; Orthopedic Surgeon, Military Orthopedic Hospital, Shepherds Bush, London, England
DETROIT

The British War Office and the Royal Army Medical Corps early realized that the responsibility of the government to the wounded soldier did not end when he was discharged from hospital with his primary wounds healed, but with his usefulness more or less impaired. They appreciated that to give a man, with a badly united femur, contracted trench feet, or a paralyzed arm, a pension sufficient to keep him alive, and leave him to shift for himself, was economically unsound. They, therefore, undertook the study and perfection of methods to restore each man as nearly as possible to a state of activity and earning power which should approximate or excel that man's state before he went into the war.

The problems were and are huge ones. First to be considered were the difficulties of reconstructive surgery. Each case presented points for study which were outside the experience of the general surgeon, and had to be worked out under conditions entirely foreign to civil life. The Medical Corps of the Army had done wonders in saving life and limbs, but their skill most easily applied itself to the acute injuries. They were apt to assume permanent crippling because they had been used to seeing similar cases in civil life remain cripples. Second, the men themselves had a natural tendency to avoid prolonged hospital treatment with repeated surgical procedures. They were willing to be content with their disabilities and look forward to a life of ease, supported by their pension and helped by their friends. They could not bring themselves to see that such a life stretching ahead for many years must sooner or later become irksome. They could not foresee as did the authorities the growing discontent—first of the individual, and second of a community—which would be fostered if large numbers of healthy young men should be kept in idleness by loss of function in one or more members. The third difficulty to be considered was the provision of suitable hospitals for the accommodation of great numbers of men who must be kept under treatment for long periods of time if good results were to be obtained. Secondary to this difficulty was the provision of workshops in which men under the process of reconstruction could be taught to do useful things adapted to their ultimate loss of function. In short, the authorities were obliged to work out the details of a comprehensive scheme for the surgical, mental and physical treatment and training of enormous numbers of damaged men, of a class which we in America see occasionally in industrial surgery, in order that at the end of the war the country's man power might be as efficient, busy, and therefore happy, as ingenuity and persistence can make it. They felt that on the proper creation of such a scheme depended very largely the welfare of the nation for many years to come.

To the everlasting credit of the government, urged on by such men as Sir Alfred Keogh, the Surgeon-General, Col. Sir Robert Jones, the great orthopedic surgeon of Liverpool, Sir Walter Lawrence, King Manuel, and others, the problems just outlined have been taken up with great firmness and breadth of vision, and a splendid approach, which is constantly broadening in scope, has been made to the solution of the difficulties of rehabilitation of the crippled soldier.

It was due largely to the energy and courage of Sir Robert Jones that the War Office was made to see that surgery had not done its uttermost when a man's wounds were healed. He showed them how special training and aptitude for the work could create surgeons who would go much further than this, and acquire through long contact with chronic cases an ingenuity and patience which would enable them to take up the work where the general surgeon left off his brilliant accomplishments.[1] He showed that only men so trained could gain the best results. At first he was given his opportunity to prove his theories on only a small scale, and even then was handicapped by transfer to other duties of the men who worked under him. Gradually, however, his results began to speak for themselves, and he was given more and more a free hand. Growth was brought about by the increase in the number of beds under his control, sometimes by setting aside numbers of beds in general military hospitals and sometimes by the creation of complete reconstruction hospitals, until now there are in the British Isles something like 11,000 beds. This number is being increased rapidly and indefinitely, with a future minimum of 30,000.

It is my privilege to be stationed at the largest of these hospitals, the Military Orthopedic Hospital at Shepherds Bush, London, with its 1,100 beds and its permanent staff of five chiefs and the necessary assistants, under the orders of a major, responsible to the R. A. M. C., who acts as superintendent, disciplinarian, and business head. The hospital is divided into five services, each under the charge of one of the chiefs, and each with about 200 beds. The chiefs are all surgeons who in peace times had leanings toward orthopedics, and most of whom have served as army surgeons in the war. They have worked up to their positions through special aptitude for the work, and through periods of training in minor orthopedic positions under Sir Robert Jones. He it is who has general supervising charge of all the hospitals, and is the originator in all matters of policy. The hospital is divided into two blocks—the South and North. In the South Block are twelve wards of thirty-six beds each where the severe cases are kept. Each two wards have a head nurse and three or four nurses with voluntary women assistants. While waiting for operation or while convalescing, if able to be out of bed at all, men are transferred to the North Block, where they care for each other under the direction of two head and two or three ordinary nurses. At night the North Block is in charge of orderlies, who have certain disciplinary powers. There are also tents where many of the convalescents live. Discipline is roughly on army lines, but is complicated by the fact that it is against the law to punish any soldier in hospital except by confinement to bed, if necessary in a sort of prison ward, and by deprivation of privileges such as leave. On the whole, considering that most of the men are pretty healthy animals, they behave extremely well.

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[1] Of late, too, it has been realized that a great proportion of the wounded men need special orthopedic care from the very first, in order that the best ultimate results may be obtained.

The hospital is thoroughly equipped with a large massage department, a gymnasium, a hydrotherapeutic plant, and an electrical department. These are interdependent and ample. The men have regular schedule cards which admit them to any or all of these departments as ordered by their surgeon. Each department is in charge of an expert in the particular form of treatment who prescribes the details, which are carried out by large numbers of trained assistants. For instance, the massage department has about twenty masseuses or masseurs, one of whom is a blinded soldier. All departments are extraordinarily well run, especially the electrical, under Capt. W. R. Bristow, whose coil for diagnostic and treatment purposes far surpasses anything I have seen. When used under his direction, electrical treatment is of real value.

As an adjunct to these departments for special treatment are large workshops—woodworking, forge, splint making, repair shops, artificial limb shop, etc. In these large numbers of the patients work regularly. Their object is fourfold: First, to keep the men busy, and in that way to take their minds off their troubles. It is well known that the victim of long standing disability is apt to become depressed and the victim of his sympathizing friends. He does not do well physically because he is in a nonreceptive psychologic state. If he works he is usually happy. Second, work provides one of the best means for passive and active motion and massage. Third, work keeps a man at his trade, or goes far to teach him a new one. Fourth, the product of the shops supplies many needs of the hospital. In the English army no man in hospital can be forced to work, except for short periods as a prescription. He must work voluntarily. Here lies the great difficulty of the curative workshop—to get a man to go to them. It has not been fully solved, and there is much to do yet in making work interesting. Gradually the men are learning the value of work, and are taking it up more willingly. The best application of work to the individual is also a hard matter, for two reasons. First, a man with an injured hand constantly tends to save that hand, and use the good one, and thus gains nothing. Second, the tendency of the business authorities of the hospital is to get as great a product from the shops as possible. Therefore, the foremen are very apt to put patients on the job they can do best, regardless of its curative value. This, too, is being solved by the appointment of a medical supervisor, who prescribes the work, and by an increasing openmindedness on the part of the authorities.

The question of long residence in hospital is also a difficult one. It is appreciated that beds in a hospital which are costly should not be blocked by men who are waiting long periods for the regeneration of nerves or the subsidence of low grade infection. Yet if the men are allowed to leave the hospital, it is often difficult to get them back. The so-called Command Depots partially solve this problem. These depots are large camps where the men are kept under military discipline, doing what little work they can, but protected from the strain of active life. They care well for certain types of cases which need no nursing. Convalescent homes, too, care for large numbers. These are rather expensive and tend to hospitalization of the patient. The Command Depots furnish some of the details of treatment, such as baths, electricity, massage etc.

From this brief statement an idea of what has been accomplished toward the regeneration of cripples in England can be obtained, and the results are excellent. Surgeons are made especially fit to deal with the men, by a well organized course of continuous training, and the trained surgeons are kept at the job.

Hospitals have been acquired by the government for the treatment of this type of case only.

The men themselves are gradually being educated to an interest in the improvement of their own condition. Education is apparently the sole means for producing this result.

Military Orthopedic Hospital, Shepherds Bush, London, England.

THE VENEREAL DISEASES

THE TREATMENT OF GONORRHEA

GENERAL CONSIDERATIONS

(Continued from page 1081)

Every patient with acute urethritis should be ordered immediately to hospital for treatment. The earlier cases are seen, the better are the chances for rapid cure and the less the dangers of posterior urethritis and the complications of gonorrhea. With gonorrhea, as with syphilis, soldiers should be encouraged to report on the slightest suspicion of trouble, and those who have been exposed should be watched for a week for manifestation of the disease. On its appearance, treatment should be instituted immediately.

The patient should be given instructions, preferably printed, on the part he must take in the conduct of his case. In all cases he must be warned of the danger of carrying the disease to his eyes, and of gonorrheal *ophthalmia*: and of the necessity of washing his hands after touching his penis or anything contaminated with his pus.

At the first examination of every case of gonorrhea, the patient should be stripped in order to permit a general survey of his condition. Note should be made of the amount of discharge and of the condition of the glans and prepuce. The presence or absence of chancre and chancroid should be determined, and the testicles should be examined for a beginning epididymitis. Then the patient should be instructed to pass his urine into two glasses.

Two-Glass Test.—The two-glass test should be made at each examination for the purpose of determining: (*a*) if the posterior urethra has been affected; (*b*) the amount of pus secreted.

The urine passed during gonorrhea appears turbid from admixture with pus, and in it are little clumps or masses of desquamated epithelium. After standing, the pus settles to the bottom of the glass and a cloud of mucus appears floating above it. As the patient goes on toward recovery, the pus disappears, but the hypersecretion of mucus continues and occasions a cloudiness of the urine, giving it a mucilaginous appearance. After the mucus disappears, the "clap-shreds" persist for months, because isolated portions of mucous membrane are not covered with epithelium and are still secreting pus.

In the two-glass test, if the anterior urethra alone is affected, the first glass of urine will be cloudy and the second glass clear; but if the posterior urethra is involved both glasses will be turbid from the presence of pus. This is accounted for by the action of the "cut-off" muscle which forms a barrier between the anterior and posterior urethra. It prevents pus in the anterior urethra from flowing back into the bladder; so that in anterior urethritis alone, the pus in front of the cut-off muscle is washed out in the first flow of urine, while the last of the urine will flow over a clean surface and remain clear; that is, the first glass will be turbid, the second clear. On the other hand, in posterior urethritis, the cut-off muscle holds back the pus, as it does the urine in the bladder, and the pus flows back into the bladder and renders all the urine turbid. When the urine in posterior urethritis is passed into two glasses, the second glass is turbid as well as the first. If it is desired to determine the condition of the anterior urethra in posterior urethritis, it can readily be done by irrigating the anterior urethra with saline solution and collecting the washings in a glass for inspection.

Microscopic Examination of Pus.—Microscopic examinations of pus are indispensable, not merely for the establishment of the diagnosis, but also for the observation of the progress and stage of the disease, for the selection of the appropriate treatment for the different stages, and finally for the purpose of determining whether the gonococci have been eliminated and the patient cured.

THE GONOCOCCUS

The gonococcus is coffeebean or kidney shaped, and usually found in diplococcus form, the flat or slightly indented side of the organisms facing each other. In pus from acute gonorrhea organisms are found both within and without the cells, crowded in masses in the leukocytes. The intracellular location of the organisms is of diagnostic importance, but is not so characteristically seen in pus from chronic cases.

The gonococcus is easily stained with methylene-blue or with most of the other anilin dyes. It is a gram-negative organism, and for the purpose of differentiation from other diplococci a Gram stain is necessary. It is quickly decolorized by Gram's method and can then be counterstained with safranin or other stain. The Gram stain does not furnish an absolutely characteristic differentiation of the gonococcus from all similar cocci, but in pus from the urethra or vagina, or from the eye in cases of acute conjunctivitis, it may be accepted as a reliable test.

For the absolute differentiation of the gonococcus, cultural methods are necessary.

In the prodromal stage when the discharge from the meatus is thin and scanty, microscopic examinations of smears shows quantities of desquamated cylindric epithelial cells and a moderate number of pus cells containing clumps of intracellular gonococci. In the ascending stage a large number of pus cells, many of them containing gonococci, and a number of free gonococci are to be seen. The stage of decline is indicated by the appearance of squamous epithelial cells, showing that the erosions have begun to cicatrize and have become covered with newly formed epithelium. Clumps of gonococci are also present, adhering to the epithelium. The pus cells have diminished in numbers and a smaller number of them contain gonococci. As the disease continues to improve, pus cells and gonococci disappear, and finally the discharge from the meatus is found to be composed only of squamous epithelium, mucus, and an occasional pus cell, without gonococci.

PROGNOSIS

The virulence of the gonococcus differs in different cases. It is often noted that when a person has chronic gonorrhea for months or years, the gonococci, wh transplanted into the tissues of another person, are not capable of producing such virulent inflammatory symptoms as when taken from a fresh case. This attenuated virulence explains the fact that in such cases the period of incubation is comparatively long, the purulent discharge is scanty, and the cases often become chronic and result in prostatitis and stricture.

Another factor which influences the prognosis in gonorrhea is the state of the patient's general health. Gonorrhea acquired in persons affected with phthisis, or who are debilitated from any cause, is apt to run a subacute, but exceedingly protracted, course. The other causes which retard recovery may be grouped as follows: (*a*) complications, posterior urethritis, prostatitis, etc.; (*b*) reinfection from a urethral gland, seminal vesicle, prostate, etc.; (*c*) lack of rest; (*d*) alcoholic indulgence; (*e*) too vigorous treatment, especially injections which are too strong or too frequently repeated; (*f*) coitus.

ANTERIOR URETHRITIS

General Management.—Acute gonorrhea should be treated on the principles that apply to other severe acute inflammatory diseases: with rest, simple diet, removal of sources of irritation, and other such measures. The patient should have rest in bed as long as the urethritis is acute or as long as there are acute complications; no other measure contributes so much to prompt and uneventful recovery He should have a bland diet from which highly seasoned or rich foods are excluded; and in very acute cases a milk diet is best. He should drink an abundance of water—eight or ten glasses daily—and no other drink except milk. Alkalies and alkaline mineral waters should not be prescribed, because an acid reaction of the urine is the best safeguard against cystitis from bacteria which find their way into the bladder; and the acidity of the patient's urine will already be greatly reduced by his free use of milk and his abstinence from meat. Throughout the disease, the bowels should be kept open with aperients, and during the very acute stage the patient should have a saline cathartic every other morning.

Dressings for the purpose of catching the discharge and keeping it from the clothing are always necessary. The best form is a loose bag, such as that which can be made by cutting off the foot of a stocking, into the bottom of which gauze can be placed to catch the pus. The bag is suspended from a waist band. In this way a free flow of pus from the urethra is encouraged and retention prevented. Constriction of the penis by dressings wrapped around it should be carefully avoided, so that there may be no interference with the return circulation. A suspensory bandage should be worn when the patient is allowed to get up, in order to relieve the sensation of dragging on the spermatic cord and perhaps to lessen the danger of epididymitis.

Oil of sandalwood is soothing and curative and should be given during the acute stages, but not copaiba or cubebs; they are serviceable only in the declining stages of gonorrhea. Sandalwood oil should be administered in capsules — dose, 0.5 to 1 c.c. (8 to 15 minims) three times a day after food. It sometimes disagrees with the digestion or causes an intense pain in the back, and then should be discontinued.

Severe Acute Urethritis.—In very severe anterior urethritis with intense reaction, profuse discharge, and great swelling and [illegible], it is good judgment to wait some sub[illegible] the symptoms before beginning injections. In the meantime the parts should be kept clean; the penis held in hot water for fifteen minutes at a time every few hours, and hot sitz baths given every three or four hours to relieve distress. If pain on urination is very distressing, it may be relieved by an injection, five minutes before urination, of 1 c.c. of 1 per cent. solution of cocain hydrochlorate or B-eucain or novocain. Sandalwood oil diminishes the pain on urination in most cases, so that the use of a local anesthetic is not often necessary.

In the same way injections should not be used for anterior urethritis in the presence of acute complications in the posterior urethra or its adnexa.

Local Treatment.—In the ascending stage of acute urethritis and in other acute cases, which do not reach the intensity suggested in the preceding paragraphs, local treatment by injection may begin at once. For treatment in this stage and as long as gonococci remain, albuminates of silver salts, such as protargol, and argyrol, should be used. The treatment may be carried out by injections with a small hand syringe or by irrigations with an uninterrupted flow of solution from a large irrigator. Both methods of treatment have their advocates; either may be used effectively. But if irrigations are used, more care is required to avoid irritation or traumatism.

For hand injection, protargol or silvol are used in strengths of from 0.5 to 2 per cent. argyrol in strength of from 2 to 4 per cent. Injections should be given three or four times daily at intervals of four to eight hours. Before injections, the patient should wash out the urethra by urinating. For these injections, an acorn-tipped syringe should be used, the tip being firmly pressed into the meatus, and the penis held under moderate tension. The injections should always be given with the utmost gentleness, and if they produce distress, their strength should be reduced. In order to be effective, a sufficient quantity of fluid must be injected to distend the anterior urethra so that a syringe of at least 15 c.c. capacity should be used. The solution must be held in the urethra for at least five minutes —better, ten.

The same treatment may be carried out by copious irrigations or urethral lavage, using a glass irrigator filled with the fluid and suspended at a height of 2 to 4 feet above the penis. The solutions used for irrigation are less concentrated than those for injection. The solutions in common use are protargol or argyrol in the strength of 1:1,000, or permanganate of potash in the strength of 1:3,000. The irrigations should be given at temperatures of from 110 to 115 F.—as hot as can comfortably be borne—and be repeated as often as four times in twenty-four hours.

Technic of Irrigations.—The patient should sit well forward on the chair and lean backward, resting his shoulders against the back of the chair. He should hold a small basin to catch the overflow of the irrigation. The irrigator tip is pressed against the meatus and the anterior urethra distended with fluid. Then by a short release of pressure of the tip a return flow is allowed. This is repeated until thorough irrigation of the anterior urethra has been obtained. If it is desired to irrigate the posterior urethra, the anterior urethra should first be washed out. Then the tip should be firmly pressed against the meatus and the anterior urethra dilated with fluid. The patient is then instructed to take a long breath and to try to urinate; this releases the cut-off muscle and the irrigating fluid flows into the bladder. The bladder is allowed to fill with fluid, but should not be distended beyond the point of comfort. After the bladder is filled, the patient empties it by urination.

The advantages of treatment by irrigations are that the surgeon is sure that the treatment is correctly applied; the discharge is rapidly reduced to a minimum; and posterior urethritis occurs less frequently than under the treatment by injections.

Stage of Decline of Gonorrhea.—Under the above methods of treatment, the acute symptoms of gonorrhea promptly disappear. If, however, treatment be discontinued at this point, even though the discharge has ceased and only a few shreds remain in the urine, a relapse is certain to occur in from two to three weeks, since a few gonococci have been left in the tissues and extensive reinfection occurs.

In about three weeks, in cases which run a favorable course under the treatment with silver albuminates, the discharge becomes watery and scant. Microscopic examination shows few or no gonococci, but many newly formed desquamated epithelial cells. The urine in the first glass is clear or slightly turbid, but contains many long mucous filaments. When the case has reached this stage, the task remains of curing the existing postgonorrheal lesions. These consist of catarrhal inflammation of the mucous membrane, erosions, periglandular infiltrations, and infiltrations of the submucous tissues. Since the albuminates of silver have the purpose only of destroying the gonococci, but exert no effect on the inflammatory processes, it is necessary at this time to treat the existing catarrh of the mucous membrane by astringent remedies.

The following are appropriate preparations for this purpose:

	gm. or c.c.	
Zinc sulphate	.60	gr. xii
Resorcin	1.25	gr. xxiv
Water	100.00	℥ iv
or		
Zinc sulphate	.20 to .60	gr. iv to xii
Phenol	.20	gr. iv
Water	100.00	℥ iv
or		
Zinc sulphate	.40	gr. x
Lead acetate	.80	gr. xx
Water	100.00	℥ iv
or		
Zinc permanganate	.05 to .10	gr. i to gr. ii
Water	100.00	℥ iv

Injections of these solutions are given once or twice daily. They are not, however, bactericidal, and should be supplemented by injections of silver albuminate, in order to get rid of the few remaining gonococci. The latter are also given twice daily, alternating with the astringent injections.

It may be repeated that these astringent injections are indicated only in the terminal stages of gonorrhea, and that they should be given neither in acute gonorrhea nor in the presence of acute complications in the posterior urethra.

Under such astringent treatment, the discharge soon stops, and the urine becomes clear and free from pus; but numerous small clap-shreds persist. When this stage is reached, a provocative irrigation of a 1:4,000 solution of silver nitrate should be given. If gonococci are still present, this causes the return of a profuse discharge, in which gonococci will be found. The occurrence of such a discharge after provocative injection necessitates a return to treatment for acute urethritis. When no relapse follows the silver nitrate irrigation and the urine is clear, but contains many shreds, dilatation of the urethra not oftener than every five days is necessary to get rid of the remaining lesions and bring the urethra back to normal. The dilatations are made with a sound large enough to distend the urethra, and if the meatus is too small to admit a 28 or 30 French sound, a meatotomy should be done. Gentle massage of the urethra should be practiced with the finger over the sound while it is lying in the urethra.

Each dilatation should be followed by a copious irrigation with a 1:10,000 silver nitrate solution, and an irrigation with the same solution should also be made on days when the dilatation is not done. A hand injection of one of the astringents may be used once or twice a day in conjunction with the irrigations.

Treatment by dilatation of the urethra and irrigation should be continued until the shreds have disappeared from the urine. In most cases this is eventually accomplished, but occasionally persons will be observed who do not respond to this treatment; these are likely to improve rapidly under a daily irrigation of potassium permanganate.

It is possible to treat gonorrhea too long, and to cause the discharge to persist by the simple irritation of injections. In such cases, there will be a secretion free from gonococci, which on squeezing will appear at the meatus as a small, transparent, glycerin-like drop, and which will cause sticking together of the meatus in the morning. In cases manifesting this condition, it is advisable to stop treatment and to allow the irritation to subside. In consequence the mucous discharge will often disappear spontaneously.

After five or six weeks of treatment, if the discharge has stopped and the urine is free from filaments, and the prostate and vesicles are not involved, treatment may be suspended. But the patient should be examined at frequent intervals for two weeks more. Cultures can advantageously be made at this time since a growth of the gonococci may be obtained even when none are seen in stained specimens. As a last precaution before discharging the patient, the urethra should be examined with a bougie à boule or urethroscope, and the condition of the prostate and seminal vesicles should be investigated to make sure that these organs are free from disease.

POSTERIOR URETHRITIS

Posterior urethritis develops as a rule after acute anterior urethritis has become subacute, that is, from the second to fourth week of infection, or later. It occurs in 40 to 80 per cent. of cases. Its occurrence is usually due to the spontaneous spread of the infection from the anterior urethra; but not infrequently the tendency to its spread is increased by a too vigorous local treatment, particularly by injudicious instrumentation. It may occur as a very severe process, or more frequently as a subacute one. In addition to the urethra, it is likely to involve the prostate and the base of the bladder, and frequently it spreads to the seminal vesicles and the epididymis.

Posterior urethritis will not escape detection, if the two-glass test is done daily as a routine measure on each patient. A turbidity of both glasses, when due to pus and not to phosphates, denotes involvement of the posterior urethra.

Severe posterior urethritis demands complete rest in bed and measures directed to the relief of the distressing symptoms. All local treatment of the urethra should be suspended. The nearer the diet approaches to a liquid or milk diet, the better. Abundant water should be taken, but diuretics should not be used, because they cause the too frequent evacuation of an already overtaxed bladder. Saline cathartics should be given every other day to reduce congestion in the pelvis. For the relief of tenesmus and pain, sitz baths of half an hour's duration, repeated several times a day, are useful. Alkalies, which favor the growth of bacteria in the bladder by rendering the urine alkaline, are contraindicated, as they are in acute urethritis. Sandalwood oil is not only curative, but soothing and gives relief in many cases. In the severe cases morphin should be given to relieve tenesmus and desire to urinate. It is best to give it in these cases in suppositories.

When other methods fail to relieve tenesmus and pain, remarkable relief is occasionally obtained by the instillation of a few drops—about ten—of a 1:500 to 1:100 solution of silver nitrate through a soft catheter or a deep urethral syringe. In the beginning this should not be stronger than 1:500, and it should not be used oftener than every two or three days. This instillation of silver nitrate in acute cases of posterior urethritis should be a last resort. It is contrary to the principles which should usually control the treatment of such cases, namely, not to introduce instruments during acute urethritis.

As a rule, the acute stage of posterior urethritis disappears promptly, and the cases pass into the condition of mild posterior urethritis, and then should be treated as such.

Treatment of Mild Posterior Urethritis.—In subacute posterior urethritis, treatment is given on principles similar to those applicable to subacute anterior urethritis. Solutions are applied to the surface, either by the injection of small quantities of concentrated solutions or by irrigations of copious quantities of dilute solutions.

In the first method, a small soft rubber catheter is introduced just beyond the cut-off muscle, and by means of a small urethral syringe about ten drops of 1:500 to 1:100 solution of silver nitrate are introduced into the posterior urethra. This is to be repeated at intervals of one or two days according to the tolerance of the case. In order to prevent immediate precipitation of the silver by the urine, the injection should be made with the bladder empty.

Irrigations are particularly applicable to the treatment of posterior urethritis. These may be given with a 100 c.c. hand syringe having an acorn tip, but they are preferably given through a gravity irrigator elevated five to six feet above the penis, according to the technic already described for irrigation. For posterior irrigations, protargol in the strength of 1:1,000 to 1:250, or silver nitrate 1:10,000 are used. Less effective, but still useful in some cases, is potassium permanganate, 1:3,000.

There is room for personal preference in selecting instillations or irrigations for the treatment of posterior urethritis. As a general statement, it may be said that copious irrigations are likely to be most useful in recent cases which are free from pain and other acute symptoms, but show rather an abundant purulent secretion; while instillations are more serviceable after the urine has cleared and only shreds remain.

As a rule, posterior urethritis is accompanied by complications in adjacent structures, and persistence depends on reinfection from these structures. Successful treatment, therefore, depends on the treatment of the complications.

(*To be continued*)

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THE OUTPUT OF BASES AFTER INTAKE OF ACID

The introduction of a nonoxidizable acid, such as the ordinary mineral acids, into the organism must resemble in considerable degree that condition which may result in acidosis. In order to retain its normal capacities, the body must neutralize the foreign acid and get rid of it in some way. Organic acids may be eliminated as such to a certain degree; but any noteworthy accumulation of acid products demands some compensatory elimination of base. Among the ordinarily available resources are the fixed alkalies and alkali earths of the body, as well as ammonia that is "deflected" from the usual course of nitrogenous metabolism. Severe acidosis invariably involves a depletion of the alkali reserves of the body.[1] It is well known that an increased output of ammonia attends the appearance of considerable quantities of acid in the organism, whether they are introduced experimentally or arise in metabolism.

The extent to which other bases may be eliminated is not so well known, owing, doubtless, to the greater difficulty in the analytic estimation of their output. Stehle[2] has lately undertaken a study of this question at the University of Pennsylvania. He found that administration of hydrochloric acid by mouth to dogs causes an increased excretion of calcium and magnesium as well as of sodium and potassium. But in the case of the latter pair — the alkalies — a subsequent compensatory retention makes the loss apparent rather than real. The ammonia is, however, the great factor in neutralizing acid administered in this way.

Stehle remarks that if an analogous condition holds in human diabetes, the resulting calcium loss may be something to take into consideration in the treatment of diabetic patients in whom the excretion of beta-hydroxybutyric acid has reached a significant figure. He cites an illustrative case in which there was an excretion of more than 5 kg. of this substance in the last 160 days of the patient's life. This is equivalent to 66 gm. of calcium. Such an amount, says Stehle, does not seem large when the whole calcium content of the body is considered; but it is unknown to what extent the calcium of the body must be considered inert. If the quantity is large, then 66 gm. may be quite a significant loss. The balance of calcium in diabetics is usually reported to be negative.

With the possible function of calcium as a neutralizer of acid in mind, it has been maintained that the storage of calcium is dependent on a suitable supply of alkali to the organism. Thus the assertion has been made that the addition of alkali carbonate to the food of children may change a negative calcium balance to a positive one.[3] This was believed to be due to the neutralization, by the alkali, of the acids formed in metabolism and also to a prevention of the formation in the alimentary tract of insoluble calcium soaps which cannot be utilized. The alkali was supposed to render unnecessary the withdrawal of calcium. According to a recent study by Givens and Mendel[4] at Yale University, administration of base produced no significant effect on the balance of nitrogen, calcium, magnesium and phosphorus, in dogs; nor did it decrease the urinary output of calcium in a human diabetic.

CANNING WHAT YOU CAN

Since Aesop wrote the fable of the ant and the grasshopper, and possibly before that time, it has been considered the act of the wise to store in times of ease and plenty for use in times of stress and poverty. When a nation is at war, production of many of the commodities of peace time of course diminishes. Therefore, one of the first considerations of the United States Food Administration is in the direction of food conservation and preservation — storing — the latter through canning, drying and other approved methods. On account of the increased production of food during the warm season of the year, it is necessary to save the surplus of perishables "to provide variety for the winter diet, lessen the expenditure for food, and help to simplify the growing problem of transportation."

Probably the most advantageous method of preserving foods is by canning, as this method retains the original form, color, flavor and texture of fruits and vegetables to a greater degree than do other means of preservation. In addition, such preserved foods require less preparation before serving. Of course, the initial cost of containers increases the price of canned foods over the expense of drying, brining or curing, but it is likely that the advantages of the canning method—and this includes putting up in jars, bottles, etc.—outweigh the disadvantage of the initial increased cost of containers, especially as most housewives use the same containers from year to year.

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[1] The Newer Conception of Acidosis, editorial, The Journal A. M. A., Aug. 25, 1917, p. 646.

[2] Stehle, R. L.: A Study of the Effect of Hydrochloric Acid on the Mineral Excretion of Dogs, Jour. Biol. Chem., 1917, **31**, 461.

[3] Dubois, M., and Stolte, K.: Jahrb. Kinderh., 1913, **77**, 21.

[4] Givens, M. H., and Mendel, L. B.: Studies in Calcium and Magnesium Metabolism, I, The Effects of Base and Acid, Jour. Biol. Chem., 1917, **31**, 421.

It is interesting to look back into the history and development of the canning industry. Near the end of the eighteenth century, the French government enacted, among other military measures, the offering of a bounty of 12,000 francs for an improved method of preserving foods.[1] The bounty, generous for that time, attracted many capable men. Nicholas Appert, an expert confectioner, brewer, distiller, and chef, worked on the problem from 1795 until 1804 before he attained his first success. At that time he found that by heating the product and then hermetically sealing the container, the food could be well preserved. In 1810 he published his results. He was awarded the prize, and is generally recognized as the discoverer of canning. By 1820 this method was being used in a commercial way. According to Appert's description, he packed the product in glass bottles, added sufficient water to cover, inserted the corks, and then placed the bottles in the water bath, heating them gradually for varying lengths of time, depending on the character of the food. He used glass exclusively.

In 1807 a Mr. Saddington in England had described a method of preserving essentially similar to that of Appert, but he did not claim to be the originator of the method, having obtained it while traveling in France. It was not generally understood why foods kept when heated by this method, but it was customary to ascribe the results to the exclusion of outside air after applying sufficient heat to the food. The French government appointed Guy Lussac to investigate the cause, and he reported that spoiling was a series of oxidation changes which could be prevented by the exclusion of outside air. It was only later that with the advent of bacteriology the true explanation came forth. And the honor for discovering most of the fundamental principles of bacteriology belongs also to the French master, Pasteur.

According to Bitting and Bitting, commercial canning on a small scale was begun in this country in New York in 1819, and in Boston in 1820, salmon, lobsters and oysters being packed in the former, and fruits in the latter. The firm of Underwood in Boston, which did the work at that time, has been in continuous operation since. The first cannery in Baltimore was opened in 1840, and the sardine industry at Eastport, Maine, in 1841. Appert used the glass bottle for his experiments, as did Saddington; but in 1810, Peter Durand in England took out a blanket patent on containers of almost every known material, and specifically mentioned tin. He is therefore known as the "father of the tin can." The early packers paid most attention to the preservation of fish and meat products, and the canning of fruits and vegetables was incidental. Today, or just previous to the onset of the war, there were packed annually in the United States some 3,000,000,000 cans of food, representing products of approximately 3,000 factories, and valued at millions of dollars.

Canning is the most widely used means of preserving large quantities of food, and is probably the best understood of all preserving methods. When properly performed, it yields food which is safe and hygienic and which has lost none of its palatability or nourishing qualities. In this way every householder may aid the food conservation bureau by economizing, with distinct advantage and with no detriment to himself.

WAR DIET AND METABOLISM

There seems to be little doubt that during the early period of the European war, when it seemed necessary to institute a strict economy in the distribution of food to the peoples of the countries involved, the food requirement of the population was underestimated for the physical work to be accomplished and underestimated for those who were in the period of adolescence; furthermore, that the enforcement of the food laws was placed in the hands of farmers, middlemen, and politicians, who mismanaged the situation.[1] The economy of food in the body is, in the first instance, a problem related to the need of energy and the metabolism of the offered nutrients. Even at complete rest the human organism requires energy for the performance of vital functions such as the activities of the heart and the work of the circulation and respiration, not to mention minor items of energy exchange which express themselves as tonus. Much more energy is called for as soon as external work is being done. If the food intake is inadequate it is inevitable, therefore, that the body should give up some of its stored nutrients—glycogen, fats, and last of all proteins—to maintain the performances just outlined. There can be no compromise in the matter of energy. The laws of the conservation of energy are inevitable in their incidence.

Two competent German physiologists, Professor Loewy and Zuntz[2] of Berlin, have related in a paper that has recently come to notice in this country how the early German food proclamations worked. They observed as the result of the restricted war diet that the majority of the strong and healthy men lost from 6 to 8 kg. (10 to 12 per cent.) of their earlier body weight. After the decrease a constant weight was established. The question is raised as to the cause of this decreased and then constant weight, and whether there is a relation to a lessened consumption of energy. With two people there was found a plainly evident reduction in metabolism and the decrease in consumption of energy was more marked than the accompanying loss of weight. An explanation of the low

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[1] Bitting, A. W., and Bitting, K. G.: Canning and How to Use Canned Foods, National Canners' Association, Washington, D. C., p. 11.

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[1] Lusk, G.: The Science of Nutrition, Philadelphia, 1917, p. 556.

[2] Loewy, A., and Zuntz, N.: The Influence of the War Diet on the Metabolism, Berl. klin. Wchnschr., 1916, 53 825.

equilibrium given is that with the decrease in body weight there is a relatively greater decrease of the active cell substance.

Evidently, any procedure which lessens the quantity of metabolizing tissues in the body may decrease the amount of energy required. An emaciated individual who is in good health will invariably exhibit a diminished metabolism. Lusk states that in starvation the fall in metabolism reaches greater proportions than does the fall in the mass of protoplasmic tissue. Thus there seems to be a specific reduction in metabolism coincident with undernutrition. But who will say that in final analysis the best measure of human performance is to be found in the most economical use of food? The newly organized Food Administration of the United States fortified by an advisory board on alimentation composed of recognized students of nutrition has not advocated that our people shall go without needed food. Indeed, we are urged to "eat wisely and well," but to choose our foods in such a way that those most needed across the seas, especially the most concentrated foods, such as wheat, beef, pork, dairy products, and sugar may be saved for export. We have for our own use an abundance of foodstuffs of other kinds—the perishables, fish, corn and other cereals—and we are asked so far as possible to substitute these for those other products of greater use abroad. The assistant secretary of agriculture has well stated the needs of the time. In time of war, he remarked, as in time of peace it is not only important, but essential that the people be well fed. Victory does not depend alone on guns and soldiers; it depends as well on the efficiency of every man, woman, and child back of the firing line. To maintain this efficiency there must be enough food and it must be so cooked and so combined as to be both palatable and nourishing. The war must be won in the kitchens and on the dining tables of America as well as in the trenches.

HUMIDITY AND HUMIDIFIERS

Our ideas respecting the physiologic action of atmospheric conditions and as to what constitutes an ideal atmospheric environment have been greatly changed in recent years. Those features of general bodily discomfort which betray themselves by unmistakable sensations—malaise, sleepiness, the flushed face, headache, disinclination to think or act, general debility—are no longer ascribed to chemical vitiation of the air, but rather to certain physical peculiarities. Carbon dioxid and unidentified organic respiratory products are at present not charged with responsibility for the unquestionably deleterious effects of certain atmospheres. Today we are inclined rather to say that "bad air" is too warm, too moist and too still. As Lee[1] has remarked, if it has not these physical features it is not harmful.

Lee has summarized the evidence of modern investigation as to what constitutes a favorable atmospheric environment by saying that when an existing external temperature is fairly comfortable to the body, an elevation of it, especially when such an elevation is accompanied by an increase of humidity, is deleterious, and the deleterious effects are more pronounced when the air is stagnant. Deleterious effects resulting from such a combination of atmospheric conditions may be obviated in some degree if the air next to the skin be put into motion, but a more effective antidote is a reduction in the temperature of the air, and this may be assisted by a reduction in its humidity. All experimentation and observation demonstrate that a moderately cool and moderately dry air in motion constitutes the most physiologically helpful aerial envelope of the body. The customary figure of 70 F. (approximately 21 C.) for the atmosphere in which most persons engage in the ordinary occupations of the living room of a dwelling, is too high; a range from 65 to 68 F. (approximately 18 to 20 C.) with not over 50 per cent. relative humidity, is undoubtedly better, but even such temperatures are too high when much physical activity occurs.

The question as to whether the atmosphere can ever become too dry for comfort or physiologic well being has not yet been satisfactorily answered. The comfort contributed by a dry atmosphere in contrast to a humid one in warm weather is unmistakable. In cold weather the moisture may be largely precipitated from the air so that it becomes extremely dry when it enters houses. This has led to the desire and the practice to moisten such air. This may be done, to some extent, by heating water in large open vessels. It has been pointed out,[2] however, that for efficient moistening of the air, either a very large evaporating surface or steam jets are required. The small open vessels or saucers on which some people rely, even when located in the air passages of a hot air furnace, have only an infinitesimal influence.

An ordinary medium-sized house requires the evaporation of not less than ten gallons of water per twenty-four hours, and much more than this according to some writers, to afford suitable conditions of moisture in cold dry weather. Various devices have been suggested and are being marketed to produce humidity in the heated house in winter months. Dean Lyon[3] of the University of Minnesota has tested four types of radiator humidifiers now on the market. The most efficient of these have evaporated no more than 1,248 grams of water (a little more than two pounds) in a day per each horizontal foot of radiator occupied by the apparatus. Lyon, therefore, states that, under the conditions of our northern winters, it will be seen that these radiator devices are practically worthless. Using the sling psychrometer he was never able to detect an increase of humidity from the use of any of them. Indeed, the best of them is no more efficient as an air moistener than one human being. The average evaporation from lungs and skin of a large laboratory class in subzero weather, and about 70 degrees F. inside temperature, was nearly two ounces per hour per person, or about 1,200 grams a day. Such information is valuable at this season when the question of maintaining humidity in house air always recurs.

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[1] Lee, F. S.: Recent Progress in our Knowledge of the Physiological Action of Atmospheric Conditions, Science, Aug. 11, 1916, **44**, 183.

[2] See, for example, Fisher, I., and Fisk, E. L.: How to Live, New York, 1915.

[3] Lyon, E. P.: Tests of *Radiator* Humidifiers, Science, Sept. 14, 1917, **46**, 262.

THE FOOD REQUIREMENT IN INFANCY

A considerable number of data are now available respecting the energy requirement of the young infant at complete rest.[1] These establish the so-called metabolism of the individual, that is, the energy transformed in a condition of muscular repose and when absorption of food from the digestive tract is not going on. In the case of new-born infants it does not exceed forty-eight calories per kilogram of body weight per day. Children at later ages, between 2 months and 1 year, manifest a heat production equivalent to about sixty calories per kilogram per day, during sleep. Valuable as this information is, it does not suffice by itself to establish a practical basis for estimating the food requirement of the child under conditions of its customary routine. Something more is necessary than an allowance of thirty calories per pound to keep a baby alive. As Dr. Mary S. Rose expresses it, babies cannot lie quietly all the time. If they are to grow and acquire strong muscles they must have exercise, which they get by crying, kicking, pounding with their fists, and other movements. This means work, requiring a further supply of energy. A baby 5 months old has been shown to double his energy expenditure by the effort of crying. Active children really work as hard as any adult manual laborer.[2] Furthermore, a not inconsiderable quota of energy is required to meet the demands of growth of the young child.

For calculating the energy requirement in infant feeding at the present time it is customary to accept as standards the figures furnished by Rubner and Heubner as the outcome of their observations in this field. Heubner maintains that an average normal infant requires per twenty-four hours, one hundred calories per kilogram of body weight during the first three months of life, ninety calories during the second three months, and eighty or less calories during the last half of the first year of life. The greatest factor of uncertainty in such figures lies in the difficulty furnished by the unknown degree of muscular activity of an infant in the course of the day. The essential facts could be established, of course, by studies of infants in a respiratory chamber where the actual metabolism could be followed over sufficiently long periods of varied infantile activity to afford evidence of the real performance of the individuals. Experiments of this sort are attended with great difficulty in performance and inconvenience to the investigator. Dr. Talbot of Boston is to be congratulated, therefore, on his success in measuring the heat output in infants at the Nutrition Laboratory of the Carnegie Institution of Washington over successive periods so that the effects of both absolute quiet and characteristic infantile activity could be independently established and compared.[3] In babies of 2 and 6 months of age, respectively, their muscular activity increased their metabolism 67 to 70 per cent. over the basal metabolism at rest.

Talbot suggests that a rough estimate of the caloric requirements of a normal infant may be made by adding the calories used up by muscular activity to the basal metabolism. If the infant is very quiet, 15 per cent. should be added, if normally active 25 per cent., and if extremely active, about 40 per cent. To the result add 15 per cent. for energy lost in the excreta and 20 per cent for growth. Lusk[4] believes that Heubner's figure of one hundred calories per kilogram of body weight during the first month of the infant's nutrition is in excess of the requirement. He states that probably eighty calories per kilogram will be found to suffice during the whole of the first year, and that the physician should remember very definitely the lower limits. Talbot's findings tend to argue for the higher rather than the lower figure and approach the Heubner standard more closely. Talbot adds, finally, it is probable that infants fed on cow's milk, particularly on formulas containing large amounts of protein, will require even more food than infants fed on human milk, because the stimulating action of protein causes extra heat to be burned during digestion. The caloric requirements of normal infants obviously are not the same as those of the sick infant whose "basal" metabolism is higher per kilogram of body weight and who may use up additional energy because of increased restlessness from colic or discomfort, burn it up in fever, or may not absorb all the food given him, as happened in one infant who lost 20 per cent. of the food calories in the feces. Neither does it apply to the infant with a subnormal temperature, indicating depressed vital functions. These infants come under another category and require further study to answer many of the points now obscure.

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[1] Benedict, F. G., and Talbot, F. B.: The Physiology of the New-born Infant, Carnegie Institution of Washington, 1915, Bull. 233. Murlin, J. R., and Hoobler, B. R.: The Energy Metabolism of Ten Hospital Children Between the Ages of Two Months and One Year, Am. Jour. Dis. Child., February, 1915, p. 81.

[2] Rose, Mary Swartz: Feeding the Family, New York, 1916.

[3] Talbot, F. B.: Twenty-Four-Hour Metabolism of Two Normal Infants with Special Reference to the Total Energy Requirements of Infants, Am. Jour. Dis. Child., July, 1917, p. 25.

[4] Lusk, Graham: The Elements of the Science of Nutrition, Philadelphia, 1917.

Current Comment

THE COST OF MARKET MILK

The Journal has repeatedly directed attention in the past few months to the importance of maintaining unimpaired the milk supply and, if possible, increasing the production of milk in the United States in the present emergency. The reasons need not be reiterated here. The desirability of providing "a quart of milk a day" for every child is only one of the impelling circumstances for securing as much as possible of this food. In the past there have been few articles of diet which furnished so much quantitatively and qualitatively in the way of desirable nutrients in palatable form as a quart of milk at the prices current before the recent skyward tendency of costs. As there is great danger that consumption of milk will be much decreased, and since much unfavorable comment is already making itself felt, it is imperative that those vitally concerned, as is the physician in eminent degree, should understand the situation in its true light. If 10 to 15 cents per quart represented exceptionally high prices of milk before the war, it does not follow that they are in any sense exorbitant at the present time. Adequate calories can no longer be purchased at the rate of 20 cents per adult requirement per day. War means sacrifice that expresses itself in increased payment for service and materials in every direction. Economy is only one form of material sacrifice in war time. As part of its program the Connecticut Committee on Food Supply has just published studies from a survey on the cost of market milk production.[1] This deals with statistical facts rather than with exaggerated generalities bearing on the actual cost of producing milk under present conditions, that is, with the abnormal increase in prices for feed, labor and other items. After all, the dairy cow is no mysterious agency, but merely a machine, as it were, for converting one kind of food into another. The output and intake are correlated in cost, and the machine must be carefully managed. In typical communities in the Eastern United States, where the milk must be produced near to an immediate market, the cost of milk production on 178 representative dairy farms for the year ending April 30, 1917, was 5.53 cents per quart, or $2.57 per hundred pounds. In April, 1917, however, the cost was 6.29 cents per quart, or $2.92 per hundred pounds, with labor at the yearly rates. There is no profit in producing milk at the lower price. The cost per quart has advanced more rapidly than the increase in price received in the past few years. As the result of a census taken among 2,500 farmers there was shown a decrease in mature dairy stock for the year of 4.5 per cent. and an increase in young stock of 6.7 per cent. There was a net decrease of all dairy stock of 1.6 per cent. This represents the conditions *on farms remaining* in the dairy business, where, *through summer* conditions and patriotic motives, they *have been able to* nearly maintain their herd numbers. *This fall, with winter* conditions ahead, if conditions *appear to be the* same as last year, many men will probably reduce their herds. This is one of the conditions that must be averted if possible. A frank understanding of the situation will help in the impending emergency.

THE BLOOD LIPOIDS IN ANEMIA

Amid all of the conflicting views and uncertain evidences regarding the etiology or pathogenesis of the severer types of anemia, and particularly pernicious anemia, practically only one characteristic feature remains undebated, namely, the ready destruction of the red blood cells. As hemolysis has been associated in recent years with the reactions of certain lipoids, the investigators of the anemias have given consideration to the possible pathologic variations of these compounds in the blood during the course of the disease. Utterance has been given to the view that an undue amount of specially hemolytic products, such as the unsaturated fatty acids, may appear and thereby account for the disintegration. Supporters of this conception call attention to the experimental production of crises resembling those of pernicious anemia, as the result of excessive feeding of cottonseed or olive oil. Again, the lack of normally present antihemolytic blood constituents, such as cholesterol, has been postulated as the real pathogenic factor involved. There are many scattered data in medical literature bearing on the features just mentioned. Until quite recently, however, the methods for accurate study of the lipoids of the blood have been decidedly uncertain, so that comparative estimates could not easily be formed. At the Harvard Medical School, Bloor and MacPherson[1] have undertaken a timely revision of the subject in order to determine with up-to-date precision to what extent, if any, the blood lipoids may be abnormal in anemia. The outcome may be summarized by the statement that the results offer no certain evidence that abnormalities in the lipoids are responsible for the disease. Nevertheless, the low values sometimes found for cholesterol, which is an antihemolytic substance, and the reported high fat fractions, which may indicate the presence of abnormal amounts of hemolytic lipoids in the blood, are possible causative factors of which, to quote the Boston investigators, further study is desirable at this time. In view of the association of the spleen with the destruction of the red blood corpuscles, and the assumption that hyperactivity of the spleen is sometimes a cause of anemia, splenectomy has been advocated and undertaken for the relief of the condition. Without venturing any conclusion at this time regarding the efficacy of removal of the spleen in the severe anemias, we may note that the operation is followed by blood-lipoid changes. There is an increase in total fatty acids and lecithin in the corpuscles and of cholesterol in the plasma. But the results are essentially the same whether the patients have had anemia or not. In most cases of anemia the lipoid composition of the corpuscles has been found to be normal; that is, analysis has disclosed nothing in their make-up chemically to indicate any abnormal susceptibility to hemolysis.

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[1] Musser, K. B.; Wh Fite, G. C.; McDonald, B. A., and Judkins, H. F.: Studies from the Survey on the Cost of Market Milk Production, Conn. Agr. College, Extension Service, Bull. 7, July, 1917.

[1] Bloor, W. R., and MacPherson, D. J.: The Blood Lipoids in Anemia, Jour. Biol. Chem., 1917, **31**, 79.

IS THERE A FATIGUE TOXIN?

In the domain of medicine explanations of phenomena are not infrequently colored by the popular theories of the day. It has always been difficult to elucidate the chief manifestations of fatigue. These have been further complicated by the peculiar interrelations of the nervous and muscular system where the problem of fatigue is concerned. Not long after the toxin antitoxin theories began to attain a vogue in immunology, the claim was made by Weichardt, in 1904, that the chief agent in the production of fatigue is a specific substance, a fatigue toxin. A corresponding or identical substance, designated "kenotoxin," was alleged to be produced by chemical manipulation of protein materials in definite ways. However obtained, these substances were asserted to have the significant property of inducing the development of an antitoxin when they were introduced in suitable ways into the animal organism. Here then there was presented an apparent opportunity of combating fatigue by scientific methods quite as striking as the subsequent method of eliminating certain cases of laziness and languor by eradicating the hookworm from mankind. Like so many other hopes of promise this too seems to have been shattered by the outcome of critical investigation. Only recently Lee and Aronovitch[1] of the Department of Physiology at Columbia University, New York City, have subjected the specific fatigue toxin to a crucial test. They noted that when test muscles were suspended in the juice of fatigued muscles of animals their working power was diminished considerably in comparison with the contractile power of normal muscles not treated with juice. But practically the same quantitative effect was observed when the test muscles were subjected to the juice of nonfatigued muscles. The New York investigators conclude that no acutely toxic fatigue substance is produced. Weichardt's assumption of the existence of a specific fatigue toxin is therefore not sustained. It seems probable, they say, that Weichardt's animals, which were actually killed by his extreme methods of inducing fatigue, were put into a profoundly pathologic condition in which the toxic component of the protein molecule was split off. There is no reason to believe that this occurs in the normal course of fatigue.

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[1] Lee, F. S., and Aronovitch, B.: Does a Fatigue Toxin Exist? Proc. Soc. Exper. Biol. and Med., May 16, 1917, 14, 153.

Rodent Destruction on Ships.—Investigation of the efficiency of fumigants for the destruction of rodents on ships was made by Creel and Simpson of the Public Health Service (*Public Health Reports,* Sept. 7, 1917). Intensive trapping after fumigation was employed to determine the effectiveness of the agents used, among them being sulphur dioxid and cyanogen gas. From this investigation it is said that a fair estimate shows that cyanid gas is superior to sulphur dioxid, besides requiring shorter exposure and consequent keeping of fumigated vessels out of service. Fumigation of 182 vessels resulted in the destruction of ninety-five out of each 100 possible rodent inhabitants, while sulphur dioxid destroyed only seventy-seven of a possible 100 in a series of sixty-two vessels. The time of exposure to the sulphur was six hours, and to the cyanid gas one and one-fourth hours. It is not believed possible to obtain 100 per cent. destruction by either agent.

Medical Mobilization and the War

IN FLANDERS' FIELDS

Note.—The verses printed below appeared recently in the New York Sunday *Times,* as "By Capt. John McRae." The author, who is still in France, is Dr. John McCrae, Guelph, Canada, a brother of Dr. Thomas McCrae of Jefferson, Philadelphia. Dr. William H. Welch, in calling our attention to this poem and suggesting its reproduction in The Journal, said: "I met him a year ago in a Canadian hospital where he had charge of the medical service. He gave me the most gripping account of the hell in which fighting goes on at the front, where he had been, that I have ever heard. The verses are so simple and direct they seem to me among the best produced by the war."—The Editor.

In Flanders' Fields

In Flanders' fields the poppies blow
Between the crosses, row on row,
That mark our place, and in the sky
The larks still bravely singing fly,
Scarce heard amidst the guns below.
We are the dead. Short days ago
We lived, felt dawn, saw sunset glow,
Loved and were loved, and now we lie
In Flanders' fields.

Take up our quarrel with the foe,
To you from falling hands we throw
The torch—be yours to hold it high.
If ye break faith with us who die,
We shall not sleep though poppies grow
In Flanders' fields.

NEW ASSISTANT SURGEONS, U. S. NAVY

On September 25, Gen. W. C. Braisted, U. S. Navy, welcomed into service a class of sixty-one Navy assistant surgeons graduating from the Navy Medical School at Washington, D. C. The majority of the class are members of the Naval Reserve Medical Corps who had been ordered to the medical school for two months of intensive training.

A number of the graduates were unable to attend the graduating exercises as they were either already on active duty or were taking postgraduate work elsewhere. Some have gone to New York City for a course at the Rockefeller Institute; some to take up the study of problems appertaining to aviation; some to the laboratory of the Washington Medical School for training in technic for the detection of germs and germ carriers of infectious diseases; and others are on duties of confidential nature.

The members of the class on active duty are: Ely L. Whitehead, Evanston, Ill.; Matthew L. Carr, New York City; Dozier H. Gibbs, Alabama City, Ala.; Normal King, Waco, Texas; Robert L. Schaefer, Allentown, Pa.; Claud W. Colonna, Mappsville, Va.; Robert T. Canon, Lufkin, Texas; William J. Corcoran, Portland, Ore.; Robert N. Hedges; Ernest Larkin, Carthage, N. C.; Everett Taylor, Lancaster, S. C., and William T. Gill, Washington, D. C.

The eight at the Rockefeller Institute include: William C. Blake, Baltimore; Tracy T. Gately, New Orleans; Frank W. Ryan, Maryville, Mo.; Nelson W. Sheley, Independence, Mo.; Lyman E. Dockry, Green Bay, Wis.; William E. Morse, Annapolis, Md.; Charles H. Savage, New Orleans, and John W. Vann, Danville, Va.

The twelve with the Aviation Corps are: Victor Armstrong, Minneapolis; Clarence J. Brown, St. Louis; Henry Le R. Franklin, Benchley, Texas; Harry C. Gebhardt; Lloyd B. Greene, Augusta, Ga.; Eugene D. Hardin, Toomsuba, Miss.; Bruce F. Holding, Wake Forest, N. C.; Robert H. McMeans, Palestine, Texas; Clarence N. Meador, Chicago; Guy B. Taylor, Gibert, S. C.; William R. Taylor, New Washington, Ind., and Frank B. Wallace, Holden, Mo.

The eight in laboratory work include: John W. S. Brady, Boston; George A. Gray, Detroit; Robert P. Henderson,

NEWS OF THE CANTONMENTS

(From Our Special Correspondents)

Camp Grant, Ill.

At the opening of Camp Grant, September 5, there were more than enough physicians present to take care of the first quota of the new National Army, and shortly enough new doctors arrived to complete the medical personnel for the division. These men were under Lieut.-Col. J. M. Phalen, M. C., the division surgeon. The medical staff were distributed among the various organizations, in the line, the base hospital, a field hospital and an ambulance company.

The base hospital under Major Michie, M. C., was already in running order, in temporary quarters, which were equipped for the care of all hospital cases. Noted specialists were assigned to its staff so that all classes of disease could be skilfully treated. Several experts were assigned to the camp to make careful examination of selected cases in their specialty. The base hospital had a laboratory which made the ordinary clinical examinations and made daily examination of the water supply.

The sanitation of the camp was under Major Bailey, M. C., who ably handled the many difficult problems which presented themselves.

The camp has been unusually free from sickness, and the hospital has had a small number of cases. Most of the cases now in the wards are in men who were sick before they left their homes.

A DAY WITH THE MEDICAL OFFICER

The life of the medical officer is a pleasant although a somewhat strenuous one. Calisthenics begin at 6:10, when every one gets thoroughly warmed up by an athletic junior officer who, for the time being, has no respect for rank or figure. Well-nourished specialists with international reputations are becoming as trim as racing yachts, and, although they pant and blow in the process, they do not utter a word of complaint. Mess is from 6:30 to 7. At 7:30 all turn out for drill in marching and until 8:30 every one learns the various sanitary formation. Again the drill master is no respecter of person and woe betide the man who "forget where his right hand lieth." From 9 to noon is devoted to medical work about the hospital. Mess is at noon. At 1:30 there is instruction in delicacies of the transfer card and other Army paper work. Some of the regimental surgeons wonder, when their transfer cards come back with "diagnosis not concurred in," whether they have forgotten their art, but they usually find they have neglected to state whether the condition was acute or chronic, catarrhal or suppurative. At 2:30 most of the ward surgeons devote an hour to instructing the ward nurses. The rest of the day is devoted to finishing up odds and ends. It will be seen that a conscientious man will be busy from early morn to late at night. There is a large amount of good material at hand, and, if a man digs into it, he can get a wonderful amount of good out of it. The work is not all medical by any means and is of such varied nature that there is little chance to grow "stale." Efficient effort is well worth while, for the man who "can and does" gets the best place and is soon repaid for his efforts.

Camp Zachary Taylor

The medical situation at Camp Taylor, Dumesnil, Ky., which has been under way for about one month under the supervision of Lieut.-Col. John H. Allen, is rapidly assuming permanent form. In the camp there are at present seventeen regimental infirmaries in the care of the regimental surgeons and the base hospital. The work since the onset has been that of examining conscripts, caring for the acutely ill and isolating the unfit infectious cases before discharge from the army.

The new men after being assigned to their companies are given their physical examinations and triple typhoid and smallpox vaccine by a board of regimental surgeons. Any with outspoken defects and the doubtful ones are referred to the "Reviewing Board," an organization composed of the heads of the various departments including the specialties. Final disposition of the case remains in their hands.

The examination of the first 5 per cent. of the conscripts pointed out many defects in system both in the regimental boards as well as in the Review Board, which when corrected made the examination of the second 40 per cent. move much more quickly and efficiently.

Many interesting medical conditions have been found which it is hoped we will have the opportunity to dilate upon at another time, several of these cases being in the base hospital at present.

BASE HOSPITAL

The base hospital has been in permanent quarters for two and one-half weeks and is occupying eight of the thirty-two wards. There are at present 216 patients in the hospital, divided as follows: medical, 23; surgical, 24; genito-urinary, 103; ophthalmologic, 53; neuropsychiatric, 13. The large number of genito-urinary patients is composed mostly of men with active syphilis, who are isolated before being discharged from the army.

The fifty-three ophthalmologic cases are trachoma, mainly from the mountain regions of Kentucky, and have been the source of much interest. Major John McMullen, U. S. Public Health Service, came last week to see these patients, and gave an interesting clinic on them. Major McMullen, formerly at Ellis Island, is at present in charge of the trachoma work in Eastern Kentucky, Virginia, West Virginia and Tennessee and is well qualified to speak on this subject. As a result of this large number of cases of trachoma, a general survey of the camp in the hands of experts is being contemplated.

SOCIAL

Major Nelson M. Black, M. R. C., from the Surgeon General's Office, spent part of the week visiting the camp. He addressed the staff of the base hospital on "Surgery of the Head," the specialty to which he is detailed.

Major John Ridlon, M. R. C., supervising orthopedic surgeon, was a new arrival this week. He will spend a few days, giving a course of lectures on his specialty and then continue on his circuit. Major Ridlon, who is honorary professor of orthopedic surgery at Northwestern University, is the fourth Chicago major at the base hospital. The other three are: Major William H. Wilder, M. R. C., professor of ophthalmology at Rush Medical College; Major F. Menge, M. R. C., professor of otolaryngology at Northwestern University, and Major Walter W. Hamburger, M. R. C., associate professor of medicine at Rush Medical College.

Camp Lee, Petersburg, Va.

Every one who comes to Camp Lee, Va., soon realizes that this is historical ground, for a little walk along the western part of the camp reveals rifle pits and in the woods along the edge of the camp are trenches and redoubts which were made by the federal forces during the famous siege of Petersburg in 1864. The base hospital is located in this area and in digging the foundation many interesting Civil War relics were found. Although many boys earned their pocket money by picking up lead from the battlefields, a little search brings to light a "minie" ball or shell fragment. About 2 miles to the west of the camp is a ridge where the Confederate works were built and there is still present the deep "crater" formed by the explosion of a mine on July 30, 1864. The mine was dug and planted by a regiment of Pennsylvanians and was the first mine exploded in war.

The camp was named after Gen. Robert E. Lee, who was in command of the Confederate forces during the defense of Petersburg. Today Pennsylvanians and Virginians, with West Virginians as well, instead of being antagonists, are drilling as brothers on this battleground.

Some of the barracks are built on the Prince George Court House Road traveled over by LaFayette and Virginia soldiers during the Revolutionary War and Yorktown is but 30 miles away.

PERSONNEL

Work was begun at the camp in June. The forest was cleared and buildings commenced. Major Henry P. Carter, M. C., U. S. Army, was appointed sanitary inspector and began his work the middle of July. Major Carter was well fitted for the work as he had just returned from three years' service in the Panama zone, where he had served as health officer of Ancon and Panama. In the latter part of July Capt. Hugh T. Nelson, M. R. C., Charlottesville, Va.; First Lieut. William F. Merchant, M. R. C., health officer of Manassas, Va., and First Lieut. Harry R. Seelinger, M. R. C., Norfolk, Va., were assigned to assist Major Carter. Under Major Carter's directions all swamp and marshy areas have been ditched and oiled, so that now instead of many anopheles mosquitoes there are none and only an occasional larva is found whose ambitions are promptly drowned by a dose of crude oil.

Major Ferdinand Schmitter, M. C., U. S. Army, came early in August to be commanding officer of the base hospital and acted as chief surgeon until the permanent assignment of the division surgeon. Major Schmitter has had a wide experience in administration and examination of recruits and has been of great assistance in directing the examination of recruits.

Lieut.-Col. T. L. Rhoads, M. C., U. S. Army, was assigned as division surgeon early in September. Colonel Rhoads brought with him a wide experience in administrative work and is admirably equipped for the post. He had been specially selected by President Taft to represent the government in handling the relief work after the flood at Dayton, Ohio. Colonel Rhoads is well known in the Army and has served as operating, administrator and also in a sanitary capacity in Texas in 1916.

A number of medical officers were assigned to the division and base hospital before the arrival of the first quota. They were temporarily quartered in barracks pending the completion of the base hospital. While in the barracks they were constantly entertained by the negro stories told by Major Joseph W. Hope, M. R. C., Hampton, Va., and First Lieut. Isaac M. Goldman, M. R. C., Richmond, Va. Now that the hospital is nearly finished the officers and the patients under treatment have moved in. Medical supplies have been furnished by First Lieut. Romanus A. LaGrinder, S. C., who has had nineteen years' experience in Hospital Corps work, and is in charge of the medical supply depot.

Capt. Elliott B. Edie, M. R. C., came from Fort Oglethorpe the last of August with the personnel of a field hospital, and First Lieut. Burr Ferguson with the personnel of an ambulance company, whose organizations had been through a course of training under Colonel Page. The medical organization has been increased by the arrival of an ambulance company under the command of Capt. Charles L. Scott, M. R. C., Raleigh, N. C., organized by the Raleigh Red Cross. The Richmond Red Cross has also sent an ambulance company under the command of First Lieut. Charles H. Lewis, M. R. C.

EARLY EXAMINATIONS

The arrival of the second quota of the draft the last of September created great activity among the medical officers. Physical examinations, vaccinations, sick call and paper work kept them busy and troubled with many new duties. The work was well done and soon finished. Recruits for rejection and doubtful cases were referred to specialists at the base hospital. Special examinations for heart and lung cases were put under the direction of Major Lawrence Litchfield, M. R. C., Pittsburg, Va.; surgical conditions, First Lieut. William L. Peple, Richmond, Va.; genito-urinary, Capt. J. Bayard Clark, M. R. C., New York City; eye, ear, nose and throat, Capt. Llewellyn E. Hetrick, M. R. C., New York City, assisted by Capt. Lawrence Thomas, Latrobe, Pa. Medical work is now progressing smoothly and sanitary conditions are excellent. Petersburg furnished the camp with a safe water supply, drainage is excellent, the camp is well sewered, buildings are all screened against flies, and the health of the men is excellent. The sick rate is far lower than the sick rate of the Army in 1916.

The Patriotism of Sioux City

Dr. John W. Shuman of Sioux City, Iowa, writes: "I note in The Journal, Sept. 29, 1917, page 1090, under 'Medical Patriots of Rochester, N. Y.,' 13.1 per cent. of the physicians of that city have enlisted. I drop you this line to let you know that Sioux City has Rochester beaten on the percentage basis. Here is Sioux City's bit to date: the population is 65,000, there are 100 physicians practicing in the city, twenty-one of whom have been commissioned in the Army."

Exemption Asked for Dental Students

A committee consisting of Arthur D. Black, Chicago, chairman; H. E. Friesell, Pittsburgh; W. H. G. Logan, Chicago, and F. D. Casto, Cleveland, has submitted to the Provost-Marshal's Office arguments for the exemption of drafted dental students. The committee points out that there is no legal obstacle to the issuance of an order for dental students similar to that issued for medical students; that dental schools will lose a large number of students by the draft and, owing to the fact that all dental schools have extended their courses from three to four years this fall, there will be no graduating classes in 1920. It is stated that the supply of dental students is already less than the demand and that the present ratio of Army dentists is inadequate. This ratio calls for one dentist to each 1,000 men, which corresponds to a provision of one hour of dental service over six months for each enlisted man. It is argued that there should be at least one dentist for each 500 men in the Army. The committee points out that dentistry is closely related to the practice of medicine, that face and head wounds constitute 20 per cent. of the injuries in the war zone, and that the services of none of the various medical specialists are more important to the welfare of the Army than those of the dentist.

Food Division in Surgeon-General's Office

Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army, has organized a division for safeguarding the food supply of the Army. This work is to be carried on in cooperation with the Quartermaster Corps and will include a food survey of each camp conducted by specialists in nutrition, together with inspection of food received for soldiers' rations and study of methods of preparation. It is desired not only to prevent sickness through improper food but also to recommend changes to provide more healthful and appetizing meals. About sixty commissioned officers will be engaged in the work of making food surveys at the camps, with about twice their number of enlisted men to assist in the work. Major John R. Murlin, formerly of Cornell University Medical College, will act as director.

Recommendations for Control of Venereal Disease in Michigan

The commission recently appointed to present recommendations for control of venereal disease as presented by the mobilization of the new army in Michigan has reported to Governor A. E. Sleeper, that at a meeting held in Lansing, September 28, the subject was carefully considered, with the view of presenting to the War Board a practical program designed to control and minimize this menace.

The commission stated that it does not harbor the illusion that venereal disease can be eradicated from the state by any program it might suggest. However, it is the unanimous opinion of its members that a great deal can be done to reduce the danger of venereal infection to the soldiers and to the civil population. It is obviously very necessary at the outset to secure the cooperation of the military authorities in any proposed plan of action.

The following general plan is recommended as the most practical means of securing the desired results:

1. The sources of infection to be located in every possible way.

By securing the cooperation of the military medical authorities in the reporting of cases from which soldiers have acquired infection.

The appointment by the state board of health of a special medical inspector to be stationed at Battle Creek, and the detailing of inspectors to other points if necessary.

Cooperation with the local health authorities of various communities in the state.

Suggestions to the cities of Battle Creek and Kalamazoo of the desirability of securing the services of full-time health officers.

Furnishing, by the state, of free laboratory tests for venereal diseases.

2. Segregation of infected persons.

Infected soldiers to be segregated in camp, by military authority.

Infected women to be segregated in detention hospitals or by house quarantine, if necessary.

Hospital facilities at Detroit and Ann Arbor being now available, the commission recommends the use of these hospitals until further arrangements can be made.

3. The treatment of infected persons.

Soldiers to be treated in camp by the military medical authorities.

Infected cases in the civil population to be cared for in the segregation hospitals above mentioned and in free clinics to be established at various points in the state.

4. The supervision of cured or arrested cases.

By paid social workers in each of the several communities near the encampment.

5. By enlargement of the protected zone.

The military authorities to be requested to extend the zones under authority of the act of May 18, 1917.

6. By a campaign of education.

In the military camps, through cooperation with the Medical Corps of the Army.

In communities throughout the state, under the auspices of the state board of health.

Cantonment and Camp Sites

Perhaps no words have been more used recently in questions of military operations in this country than the words "cantonment" and "camps." According to the Field Service Regulations:

> When troops are sheltered under canvas, they are in camp. When resting on the ground without shelter, they are in bivouac. When occupying buildings in towns or villages, or huts specially erected, they are in cantonment.
>
> Cantonments often develop through improvement of camps—huts or temporary buildings taking the place of tents.

Paragraph 236 of the Field Service Regulations of United States Army concerns shelter in the service of the interior. In itself it is a lesson in hygiene and sanitation. It says:

> In mobilization and concentration camps, troops are sheltered under canvas or in temporary barracks, and proper provision is made for their health, comfort, and instruction. As a rule, such camps or cantonments should fulfil the following conditions:
>
> 1. The grounds should be easily drained, naturally healthful, large enough for depots, corrals, hospitals, etc., and the encampment of the troops without crowding, and with ample space for exercise and instruction.
>
> 2. The water supply should be excellent and abundant and not liable to contamination from any source.
>
> 3. There should be ample railroad and switching facilities and suitable arrangements for loading and unloading, as the fundamental reasons for the mobilization or concentration will be defeated if ample rail or water facilities are not available to promptly receive and dispatch troops and supplies.
>
> 4. All parts of the camp should be readily accessible by good wagon roads.
>
> All arrangements for the accommodation and supply of the troops should be completed before their arrival by the permanent camp personnel sent ahead for the purpose. Camps are laid out so as to preserve the integrity of units, the headquarters of each being centrally or conveniently located with respect to its troops; tents are pitched and aligned, kitchens equipped, water and fuel supply arranged, latrines prepared, hospitals erected, and arrangements made for ample mail, telegraph, and telephone service. The general headquarters should be centrally located and connected by wire with the principal subordinate headquarters. Depots and storehouses are placed at railroad sidings and the hospitals near the railroad station. Trains are placed so as to interfere as little as possible with the comfort and cleanliness of the troops.
>
> No individuals, troops, or trains of organizations temporarily present should be attached to the permanent camp personnel, if it can be avoided. It is the function of the permanent camp personnel to operate depots, hospitals, to maintain camp telephone and telegraph lines, etc. The troops temporarily present must be in constant readiness to move.

August 18, the Field Service Regulations were modified, and this paragraph was added:

> 5. Boards for the selection of permanent or semipermanent cantonment sites will include in their membership an officer of the Medical Corps.
>
> All questions of sanitation and hygiene, relating to building construction, water supply, drainage, or sewage disposal for such cantonments, on which the board is not unanimously agreed, will be referred to the department commander for final action.

Orders to Officers of the Medical Corps

Lieut.-Col. J. C. Gregory, M. C., to Fort Benjamin Harrison, Ind., training camp, as instructor.

Par. 12, S. O. 210, Sept. 10, 1917, War D., relating to Major L. P. Williamson, M. C., is revoked.

Officers of M. C. to duty as follows: Col. T. J. Kirkpatrick to Fort Oglethorpe as surgeon; Lieut.-Col. F. C. Baker to Fort Oglethorpe, medical officers' training camp, as camp surgeon; Major J. W. Meehan from duty in Canal Zone to Syracuse, N. Y.

The following appointments in the Medical Corps are announced, to rank from the dates named, all in 1917: To be first lieutenants: First Lieuts. J. P. Kelly, Aug. 20; E. J. Farrow, Aug. 21; H. L. Freeland, Aug. 22; W. M. Archer, Jr., Aug. 23, and H. F. Philips, Aug. 24.

The leave granted Major F. N. Chilton, M. C., on account of sickness, is extended one month.

First Lieut. A. J. Canning, M. C., from Corregidor Island to Manila for duty.

Major P. L. Freeman, M. C., to duty at Fort Myer, Va.

Major E. G. Huber, M. C., to South Bend, Ind., for investigating the report of typhoid fever at that place.

Orders to Contract Surgeons

CALIFORNIA

To Camp Kearny, Linda Vista, Calif., from Arcadia, Calif., for duty as a member of a board of medical officers for the special examination of the troops for tuberculosis, Drs. Charles C. Browning, J. E. Fahy, Leon Shulman, Los Angeles; Lewis D. Remington, Monrovia.

CONNECTICUT

To Walter Reed General Hospital, Tacoma Park, D. C., and report to commanding officer for special instruction in tuberculosis examinations, Drs. George H. Jennings, Jewett City; Hugh F. Keating, New Haven.

DISTRICT OF COLUMBIA

To Walter Reed General Hospital, Tacoma Park, D. C., for duty, Dr. Francis S. Echols, Washington.

To his home from duty at Camp Lee, Petersburg, Va., Dr. Thomas A. Claytor, Washington.

ILLINOIS

To Walter Reed General Hospital, Tacoma Park, D. C., and report in person to commanding officer for special instruction in tuberculosis examinations, Dr. James S. Rankin, De Kalb.

LOUISIANA

To their homes from duty, Drs. Robert Bernhard, Harold J. Gondolf, James C. Cole, Edmund Moss, New Orleans; Robert A. Strong, Pass Christian.

MASSACHUSETTS

To his home from duty at Boston, Mass., Dr. Edward W. Taylor, Boston.

MISSOURI

To his home from Chickamauga Park, Ga., Dr. Scott P. Child, Kansas City.

NEW YORK

To Camp Sevier, Greenville, S. C., for the purpose of making examinations in his specialty and on completion of this work to return to his home, Dr. Robert J. Carlisle, New York City.

To Walter Reed General Hospital, Takoma Park, D. C., and report in person to commanding officer for special instruction in tuberculosis examinations, Drs. Leonard P. Sprague, Chateaugay; Percival F. Dalphin, Malone.

RHODE ISLAND

To Walter Reed General Hospital, Takoma Park, D. C., and report in person to commanding officer for special instruction in tuberculosis examinations, Dr. Jay Perkins, Providence.

TEXAS

To his home from duty at Leon Springs, Dr. Charles H. Carter, Smithville.

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Army Medical School, Washington, D. C., for instruction, Lieut. Clarence C. Elebash, Selma.

To Camp Gordon, Atlanta, Ga., for duty as tuberculosis specialist and assistant to the Army Medical Staff, Capt. Cabot Lull, Jr., Birmingham.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. James R. Haigler, Montgomery.

To Phipps Clinic, Baltimore, Md., for a course of study in his specialty, Lieut. Robert H. Howard, Tuskegee.

To Post Graduate Hospital, New York, N. Y., for a course in orthopedics and on completion of this course to proceed to Boston, Mass., for further instruction, Capt. Paul L. Cocke, Birmingham.

ARIZONA

To Fort Benjamin Harrison for a course of instruction, Lieut. William A. Kinsley, Tuscon.

To Fort Benjamin Harrison for instruction, Lieut. Charles F. Thomas, Fordyce.

To Fort Des Moines, Ia., for instruction, Lieut. George W. Antoine, Prescott.

CALIFORNIA

To Camp Kearny, Linda Vista, Calif., from Arcadia, Calif., for duty as a member of a board of Medical Officers for special examination of the troops for tuberculosis, Capt. Ralph L. Byrne, Los Angeles.

To Camp Macarthur, Waco, Tex., from Psychopathic Hospital, Ann Arbor, Mich., to make examinations in his specialty, Lieut. William H. Holmes, Pomona.

To Fort Benjamin Harrison for instruction, Lieut. Clarence H. White, Los Angeles.

To Fort Des Moines, Ia., for instruction, Lieut. Claudius Ballard, Los Angeles.

CANAL ZONE

Par. 55, War Dept., Aug. 27, 1917, as related to Major Thomas D. Woodson, Corozal, modified so as to assign him to permanent duty in the office of the Surgeon General.

COLORADO

To Camp Dodge, Des Moines, Ia., for duty with Red Cross Ambulance Co., No. 30, Lieut. Jesse D. Wilson, Ideal.

CONNECTICUT

To Army Medical School, Washington, D. C., for instruction, Lieuts. Joseph A. Higgins, Manchester; Charles A. Jenkins, Willimantic.

To Camp Jackson, Columbia, S. C., from Walter Reed General Hospital, for duty as tuberculosis specialist and assistant to the Army Medical Staff, Lieut. Wilson Pendleton, Wallingford.

To Fort Benjamin Harrison, for a course of instruction, Capts. Thomas F. Scanlon, Georgetown; from Walter Reed General Hospital, for duty as instructor in tuberculosis examinations, Henry F. Stoll, Hartford.

DISTRICT OF COLUMBIA

To Camp Mills, Garden City, L. I., for inspection and on completion of this duty to return to his proper station, Major General William C. Gorgas, Washington.

FLORIDA

To Army Medical School, Washington, D. C., for instruction, Lieut. James E. Pennington, Wellborn.

GEORGIA

To Fort Benjamin Harrison for instruction, Lieut. Charles J. Woods, Darien.

To Fort Des Moines, Ia., for instruction, Lieut. Frank P. Raiford, Atlanta.

To home from Fort Oglethorpe on account of being physically disqualified, Lieuts. John W. Oden, and Thomas E. Oden, Blackshear.

ILLINOIS

To Army Medical School, Washington, D. C., for instruction, Lieuts. Marcus H. Hobart, Chicago; Guy V. Forney, Walnut.

To Camp Doniphan, Ft. Sill, Okla., from Psychopathic Hospital, Ann Arbor, Mich., to make examinations in his specialty, Lieut. Harry R. Hoffman, Chicago.

To Camp Grant, Rockford, Ill., for duty, Capt. French S. Cary, Chicago.

To Camp Greenleaf, Ft. Oglethorpe, for instruction, Capt. Thomas S. Crowe, Chicago; Lieut. Thomas W. Toler, Astoria.

To Fort Benjamin Harrison for instruction, Major John W. Turner, Oak Forest; Capts. Roy H. Garm, Beardstown; Lorin C. Collins, Chicago; Henry G. G. Schmidt, Elgin; Bernard M. Conley, Wilmette; Lieuts. William C. Cotton, Benson, Ill.; Robert A. Noble, Bloomington, Ill.; Henry S. Zimmerman, Cameron, Ill.; Everett P. Coleman, Canton, Ill.; Ira McKinney, Champaign, Ill.; Norman S. Starr, Charleston, Ill.; Walter E. Bourque, Chicago; Maurice W. K. Byrne, Chicago; Mandel A. I. Cohen, Chicago; William De Boer, Chicago; Karl J. Henrichsen, Chicago; Harry T. Isacowitz, Chicago; Robert R. Kirkpatrick, Chicago; Anthony J. Linowiecki, Chicago; Gilbert M. Loewe, Chicago; Gottlieb A. Lurie, Chicago; Harry G. Martin, Chicago; Frank R. Maurer, Chicago; Clarence McClellan, Chicago; Guy M. McLean, Chicago; Theodore E. Miller, Chicago; Eugene A. Moulton, Chicago; David V. Omens, Chicago; Hans A. Paulsen, Chicago; Ralph W. Petersen, Chicago; Louis W. Pijan, Chicago; Irving A. Porges, Chicago; Carl G. Rydin, Chicago; Samuel Sullivan, Chicago; George C. Tallerday, Jr., Chicago; Adolph M. Teixler, Chicago; George B. Wallace, Chicago; Warren O. Wheelock, Chicago; Theodore M. Wiersen, Chicago; Edward Buckman, Chicago; George W. Cusick, Chicago; Louis Savitsky, Cicero, Ill.; Frank A. Stockdale, Coal City, Ill.; James R. Tweedy, Cobden, Ill.; Raymond E. Hillmer, Crescent City, Ill.; Charles J. Davis, Deerfield, Ill.; Walter A. Day, Fosterburg, Ill.; Clair L. Stealy, Freeport, Ill.; Frederick C. Vogt, Gillespie, Ill.; Osmon C. Church, Glen Carbon, Ill.; Harry D. Wiley, Glencoe, Ill.; Paul G. Capps, Herrin, Ill.; Elza F. Tate, Homer, Ill.; Oscar George Culli, Ina, Ill.; Augustus S. Hunt, Jerseyville, Ill.; Hayden F. Threlkfeld, Jerseyville, Ill.; Joel E. Toothaker, Ladd, Ill.; William E. Mercer, Liberty, Ill.; Ralph E. Kleckner, Mattoon, Ill.; George C. Shockey, Melrose Park, Ill.; Anson Leroy Nickerson, Momence, Ill.; Charles J. Poole, Mt. Vernon, Ill.; Ralph S. Sabine, Murphysboro, Ill.; Raymond C. Gillogly, Newmann, Ill.; Marshall Wallis, Normal, Ill.; Arthur K. Spiering, Oak Park, Ill.; Ralph G. Cressman, Oglesby, Ill.; Corwin S. Mayes, Olliopolis, Ill.; John O. Gaston, Park Ridge, Ill.; Harry E. Brown, Peoria, Ill.; James F. Hilgenberg, Pesotum, Ill.; Loran E. Orr, Petersburg, Ill.; Alonzo B. Middleton, Pontiac, Ill.; Orin R. Wakefield, Princton, Ill.; Harry S. Seiwell, Quincy, Ill.; William E. Park, Rockford, Ill.; Robert B. Miller, Rock Island, Ill.; Ford C. Walsh, Rock Island, Ill.; Benjamin D. Mosher, Serena, Ill.; William D. Chapman, Silvis, Ill.; Clausen M. Wilmot, Speer, Ill.; Ora M. Williamson, Sullivan, Ill.; Asa L. T. Williams, Vandalia, Ill.; Thomas W. Morgan, Virden, Ill.; Clarence W. Chapin, Weldon, Ill.

To Ft. Des Moines, Ia., and report to the commanding officer of that post for duty as chief of the medical service at the base hospital, Capt. Herbert H. Frothingham, Chicago.

To Fort Riley, for duty at Base Hospital, Lieut. Edmon E. Richardson, Mattoon.

To Fort Sheridan, Ill., from duty at Camp Grant, and report for duty to the commanding general, Capt. Theodore S. Proxmire, Lake Forest.

To Washington, D. C., St. Elizabeth Hospital for course of study in his specialty, Lieut. Harry A. Durkin, Peoria.

To his home from Fort Oglethorpe on account of being physically disqualified, Lieut. James A. Emmons, Pinkstaff.

Par. 26, War Dept., July 30, 1917, as relates to Lieut. George D. Guca, Chicago, is revoked.

INDIANA

To Boston, Mass., for a course in orthopedics and on completion of this course to proceed to Post Graduate Hospital, New York, for further instruction, Lieut. Louis A. Bolling, Attica.

To Fort Benjamin Harrison for instruction, Lieuts. Aaron M. Winklepleck, Alfordsville, Ind.; George C. Taylor, Clay Pool, Ind.; Harry H. Ward, Coalmont, Ind.; Homer H. Tallman, Culver, Ind.; Walter W. Wright, Edinburg, Ind.; Warren Wilburn Hewins, Evansville; Reavill M. Walden, Evansville; Ben Webster, Kingsbury, Ind.; Frederick A. Henderson, Kokomo, Ind.; Byron J. Peters, Kokomo, Ind.; Manford M. Clapper, Lafayette, Ind.; Carlos C. Rozelle, La Grange, Ind.; Benjamin T. Teaford, Lanesville, Ind.; James O'Dell Rhea, Linden, Ind.; Otto H. Swantusch, Metz, Ind.; Irving A. Whitlach, Milan, Ind.; Lloyd H. Simmons, Millersburg, Ind.; Earl L. Waite, Rochester, Ind.; Ora L. McCoy, Romney, Ind.; Tony E. Hunter, Versalles, Ind.; Espy K. Schurtz, Waterloo, Ind.

So much of Par. 34, War Dept., Aug. 30, 1917, as relates to Lieut. Lawrence E. Jewett, Wabash, is revoked.

IOWA

To Army Medical School, Washington, D. C., for instruction, Lieuts. William H. Jenks, Jr., Tipton.

To Fort Benjamin Harrison for instruction, Lieuts. Robert S. Moth, Council Bluffs; Robert B. Stephenson, Libertyville; John C. Crane, Varina.

To Washington, D. C., St. Elizabeth Hospital, for course of study in his specialty, Lieut. Percy B. Battey, Independence.

Honorably discharged from Fort Riley, Lieut. Corvus C. Lang, Altoona.

KANSAS

To Camp Pike, Little Rock, Ark., for duty with Ambulance Co. No. 44, Lieut. David C. Munford, Montezuma.

To Fort Benjamin Harrison for a course of instruction, Lieut. Paul C. Carson, Ashland.

To Fort Leavenworth, Kan., for duty as ophthalmologist and otolaryngologist in the Post Hospital, Capt. John L. Fryer, National Military Home.

KENTUCKY

To Army Medical School, Washington, D. C., for instruction, Lieuts. Floyd K. Foley, Central City; Nona B. Ellis, Lynnville.

To Fort Des Moines, Ia., for instruction, Lieut. William H. Smith, Louisville.

To Fort Riley, for duty as Chief of the Surgical Service, Capt. Frank T. Fort, Louisville.

To Phipps Clinic, Baltimore, Md., for a course of study in his specialty, Capt. Walter A. Lackey, Hopkinsville.

Honorably discharged from Fort Riley, Capt. William A. Poole, Henderson.

LOUISIANA

To Army Medical School, Washington, D. C., for instruction, Lieut. Henry T. Simon, New Orleans.

To Fort Des Moines, Ia., for instruction, Lieut. Aaron W. Brazier, Slidell.

Letter from War Dept., Sept. 18, 1917, No. 4249, as relates to Lieut. Neely M. Palmer, Leesville, is revoked.

MAINE

To Fort Benjamin Harrison for instruction, Lieuts. Henry K. Stinson, Augusta; Ralph W. Wakefield, Bar Harbor; William J. Young, Orono; Edward L. Sollima, Portland; Preston W. Whitaker, Unitz; Bernard A. Bailey, Wiscasset.

MARYLAND

To Camp Meade, Annapolis Jct., Md., for duty as tuberculosis specialist and assistant to the Army Medical Staff, Capt. Gordon Wilson, Baltimore.

To Fort Benjamin Harrison for instruction, Lieut. Frederick W. Wastell, Jr., Harbor Beach.

To Walter Reed General Hospital, from Fort Myer, Va., for a course of instruction in tuberculosis examinations, Lieut. Charles W. Rauschenbach, Baltimore.

To Washington, D. C., and report in person to the Surgeon General of the Army for duty in the section of surgery of the head, Major James Bordley, Jr., Baltimore.

Par. 80, War Dept., June 2, 1917, so much as relates to Major John A. Clark, Takoma Park, is revoked.

MASSACHUSETTS

To Boston State Hospital, Boston, Mass., for a course of study in their specialty, Lieuts. William T. Rumage, Arlington; George B. Wilbur, Newton.

To Camp Logan, Houston, Tex., from Psychopathic Hospital, Boston, Mass., to make examinations in his specialty; Lieut. Raoul G. Provost, New Bedford.

To Camp Meade, Annapolis Jct., Md., from Fort Benjamin Harrison and report in person to the commanding general 79th Div., for duty with the 23d Engrs., Capt. Timothy F. Goulding, Boston.

To Fort Benjamin Harrison for a course of instruction, Capts. Carlisle Reed, Boston; Charles Dudley, Kingston; Erik St. John Johnson, New Bedford; Charles L. Upton, Shelburne Falls; Lieuts. Louis J. Ullian, Sterling E. Wilhoit, Boston; Henry L. Davis, Lynn; Ridgely F. Hanscom, Newton; John A. Sullivan, Pittsfield; George W. Tully, Southbridge; William L. Connery, Springfield.

To Washington, D. C., and report in person to the Surgeon-General of the Army, for duty in connection with the section surgery of the head, Major Allen Greenwood, Boston.

Par. 204, War Dept., Aug. 22, 1917, as relates to Lieut. William J. McDonald, Brookline, modified so as to relieve him from duty at Fort Snelling, Minn.

MICHIGAN

To Army Medical School, Washington, D. C., for instruction, Lieut. James G. Carr, Detroit.

To Camp Beauregard, Alexandria, La., from Psychiatric Clinic, Ann Arbor, Mich., to make examinations in his specialty, Lieut. George K. Pratt, Flint.

To Camp Shelby, Hattiesburg, Miss., from State Psychopathic Hospital, Ann Arbor, Mich., to make examinations in his specialty, Lieut. Ray S. Moorish, Flint.

To Fort Benjamin Harrison, for a course of instruction, Capts. Clarence M. Williams, Alpena; Edward C. Rumer, Flint; William W. Arscott, Rogers; Lieuts. Frederick S. Baird, Bay City; David D. Todd, Calumet; Edward W. Vis, Central Lake; Benjamin T. Goodfellow, Clio; George G. Rieckhoff, John H. Slevin, Detroit; Walter S. Sharpe, Dowagiac; Horace J. Beel, Grand Rapids; Glenn T. Soule, Henderson; Albert J. Schmaler, Hillman; James Rhines, Laurium; Isaiah Sicotte, Michigamme; Birge C. Swigt, Middleville; Albert R. Tucker, Mohawk; Theodore S. Crosby, Wakefield.

MINNESOTA

To Army Medical School, Washington, D. C., for instruction, Lieut. Henry V. Hanson, New London.

To Camp Mills, Garden City, L. I., for inspection and on completion of this duty to return to his proper station, Major Charles H. Mayo, Rochester.

To Cornell Medical [illegible] York, [illegible] of instruction military roentgenology, [illegible] J. [illegible]

To Fort Benjamin Harrison for instruction, Lieut. George H. Norris, Annadale.

To Fort Worth, Tex., from Fort Riley, for duty at the Signal Aviation School, Lieut. Arthur J. Lewis, Henning.

MISSISSIPPI

To Camp Wadsworth, Spartanburg, S. C., from Fort Benjamin Harrison, and report in person to the commanding general for duty, Lieut. Paul X. Browne, Jackson.

Par. 4126, Sept. 15, 1917, War D., as relates to Lieut. Paul Z. Browne, Jackson, is revoked.

MISSOURI

To Chicago, Ill., and St. Louis, Mo., for the purpose of establishing schools of plastic and oral surgery, section of surgery of the head and then to Rockford, Ill., to inspect division of plastic and oral surgery at base hospital, and on completion to return to his proper station, Major Vilray P. Blair, St. Louis, Mo.

To Fort Benjamin Harrison for instruction, Lieuts. Cameron A. Rose, Kansas City; Richard L. Russell, Humansville; Elsworth J. Smith, St. Louis.

To Phipps Clinic, Baltimore, Md., for a course of study in their specialty, Lieuts. William G. Patton, Farmington; Charles H. Burdick, St. Louis.

To Post Graduate Hospital, New York, from Army Medical School, Washington, D. C., for a course in orthopedics, and on completion of this course to proceed to Boston, Mass., for further instruction, Lieut. Lee H. Winemiller, Farley.

Letter, Sept. 20, 1917, No. 4448 War Dept., so much as relates to Lieut. Lee H. Winemiller, Farley, is revoked.

So much of Par. 6, Aug. 18, 1917, as relates to Lieut. Frank N. Wilson, St. Louis, modified as to read for service in the British Heaty Hospital.

NEBRASKA

To Fort Benjamin Harrison for instruction, Lieut. Louis E. Hanisch, Omaha.

To Fort Oglethorpe. for instruction, Lieut. Herman A. Gerbig, Friend.

Letter from War Dept., Sept. 12, 1917, No. 3887, for a course of instruction in military roentgenology in Kansas City, relating to Capt. William H. Mick, Omaha, is revoked.

To New York, N. Y., for instruction in military roentgenology, Capt. William H. Mick, Omaha.

NEW HAMPSHIRE

To Fort Benjamin Harrison for a course of instruction, Capt. Charles A. Sturtevant, Manchester.

To Fort Oglethorpe, from School of Military Roentgenology, Boston, Mass., for instruction, Lieut. Stilman G. Davis, Nashua.

To Fort Benjamin Harrison for instruction, Lieuts. Edmund W. Ill, Solomon J. Sambur, Newark.

To Fort Oglethorpe for instruction, Lieut. Charles L. Davis, South Dayton.

To Post Graduate Hospital, New York, N. Y., for a course of orthopedics, and on completion of this course to proceed to Boston, Mass., for further instruction, Lieut. Frank W. Pinneo, Newark.

Par. 2, War Dept., Sept. 10, 1917, which relates to Lieut. Edgar B. Funkhouser, Trenton, is revoked.

So much of Par. 72 and 73, War Dept. Aug. 27, 1917, as relates to Lieut. Abraham J. Gordon, Newark, is revoked.

NEW YORK

To Army Medical School, Washington, D. C., Lieuts. Wilfred V. Egan, Brooklyn; Fred G. Jones, Clark Mills; Arthur Krida, Schenectady.

To Camp Bowie, Fort Worth, Tex., from Neurological Institute, New York, to make examinations in his specialty, Lieut. John J. Hughes, Mt. Vernon.

To Camp Cody, Deming, N. M., from Psychopathic Hospital, Boston, Mass., to make examinations in his specialty, Lieut. Clarence J. O'Alton, New York.

To Camp Custer, Battle Creek, Mich., from Walter Reed General Hospital, for duty as tuberculosis specialist and assistant to the Army Medical Staff, Lieut. Nelson K. Gromm, Albany.

To Camp Lee, Petersburg, Va., from Walter Reed General Hospital, for duty as tuberculosis specialist and assistant to the Army Medical Staff, Capt. John P. Faber, Schenectady.

To Camp McClellan, Anniston, Ala., from Fort Benjamin Harrison to make examinations in his specialty, Lieut. Frederick C. Devendorf, Utica.

To Camp Mills, Garden City, L. I., from Army Medical School, Washington, D. C., for temporary duty in laboratory, Lieut. Fred. M. Meader, New York.

To Camp Meade, Annapolis Jct., Md., and report in person to the commanding general, 79th Division, for duty with the 23rd Engineers, Capts. Waldemar T. Browne, Brooklyn; for duty in connection with venereal diseases, Faxton R. Gardner, New York City.

To Camp Upton, Yaphank, L. I., for duty, Capt. Frederick P. Hammond, Lieut. Ammi B. Edgar, New York City.

To Camp Wheeler, Macon, Ga., from Buffalo State Hospital, Buffalo, N. Y., to make examinations in his specialty, Capt. Robert King, Buffalo.

To Fort Benjamin Harrison for instruction, Major Frank A. Walder, Lockport; Capts. Otto C. J. Von Renner, Buffalo; Walter H. Vosburg, Dunkirk; Raymond F. Longacre, Lee S. Shoninger, Archibald W. Taves, New York City; John D. Shipmam, Vernon; Lieuts. Summer E. Douglas, Adams; Bryan G. Shults, Albany; Arthur H. Wheeler, Albany; Joseph J. Dunnigan, Auburn; Edward Danforth, Bainbridge; Paul E. Betowski, Bath; George B. Reitz, Brooklyn; August M. Sartorius, Brooklyn; Irving S. Schweikraut, Brooklyn; Morris K. Silberman, Brooklyn; Alexander S. Sim, Brooklyn; Arthur E. McCarthy, Buffalo; Windsor R. Smith, Buffalo; Victor A. Tyrasinski, Buffalo; George H. Shaw, Camillus; Henry S. Edmunds, Cassadago; Walther C. A. Steffen, College Point; Hall G. Van Vlack, Forestville; Maxwell K. Willoughby, Genoa; Henry E. Clarke, Glens Falls; James H. Van Marter, Groton; William M. Sill, Jamestown; Patrick J. Hirst, Middle Grove; Charles A. Smith, New Rochelle; Henry C. Falk, Joseph Haas, Saul L. Meylackson, Isaac Reitzfeld, Charles P. Roach, Jay B. Rudolphy, Harry O. Saunders, William J. Scott, Isadore Seff, Solomon Shlimbaum, Henry B. Siglar, Benjamin J. Slater, Joseph T. Slonimsky, Louis J. Sokol, Oscar Spier, Maurice A. Sturm, Joseph Subkis, Lewis H. Taft, Edward H. Tonolla, Abraham Unger, Henry L. Wonner, Jr., New York City; Hamilton M. Southworth, Old Chatham; Bernard S. Strait, Penn Yan; Roy W. Bury, Philadelphia; Leo R. Tighe, Poughkeepsie; Roy J. Marshall, Le Clare Stuart, Rome; James A. Taggert, George B. Ubel, Salamanca; Stephen J. H. Reed, Sangerties; Leroy D. Sopee, Smyrna; William Trotter, Troy; John Peter Schneble, Wood Haven.

To Fort McPherson, Ga., from Camp Mills, and report to the commanding officer of that post for duty as chief of the medical service at the base hospital, Lieut. Charles N. B. Camac, New York City.

To Fort Oglethorpe for instruction, Lieuts. Johnston MacLeod, Flushing; Arthur G. Pilch, Rochester.

To Neurological School, Philadelphia, Pa., for four weeks' intensive training in brain surgery, Capt. Edwin Beer, New York City.

To Neurological Institute, New York, for a course in his specialty, Lieuts. Vincent W. Weiss, New York City; Samuel W. Hausman, Ogdensburg; Ward W. Millias, Rome.

To Psychopathic Hospital, Ann Arbor, Mich., from Fort Benjamin Harrison, for study in their specialty, Capt. George F. Mills, Oneida; Lieuts. Geoffrey C. H. Burns, Central Islip; Emil Altman, New York City.

To Post Graduate Hospital, New York, for a course of orthopedics and on completion of this course to proceed to Boston, Mass., for further instruction, Major Charles W. Hennington, Rochester; Lieut. William T. Shields, Troy.

To Signal Corps, Aviation School, Hazelhurst Field, from West Point, for duty, Lieut. F. L. Senger, Brooklyn.

To Washington, D. C., and report in person to the Surgeon General of the Army for duty in his office, Major William L. Hart, Madison Barracks; Lieut. Sanger Brown, White Plains.

To be relieved from the duty assigned him by Par. 154, War Dept., Aug. 22, 1917, and return to the inactive list of the M. R. C. of the Army, Major Edward S. Van Duyn, Syracuse.

Now on duty at Plattsburg Barracks, as contract surgeon be ordered to active duty as major, effective Sept. 3, 1917, Major M. S. Gregory, New York City.

To their Homes, Lieuts. Lemuel W. Gorham, Albany; Ambrose A. Scouler, Brooklyn; Abraham Skversky, New York City; John A. Conley, Penn Yan.

NORTH CAROLINA

To Army Medical School, Washington, D. C., for instruction, Lieut. Kelso A. Carroll, Raleigh.

To Camp Beauregard, Alexandria, La., from Camp Wadsworth, Spartanburg, S. C., for duty as Chief of the Surgical Service, Major John T. Burrus, High Point.

To Camp Des Moines, Ia., for instruction, Lieut. William H. Bryant, Henderson.

To Fort Benjamin Harrison for a course of instruction, Lieut. Wilbur G. Jenkins, Raleigh.

Letter, Aug. 31, 1917, No. 3194, War Dept., so much as relates to Lieut. Isaac M. Taylor, Morgantown, is revoked.

Honorably discharged on account of being physically disqualified, Lieut. Isaac M. Taylor, Morgantown.

NORTH DAKOTA

To Kansas City, Mo., for a course of military roentgenology, Lieut. Leslie G. Eastman, Hazen.

OHIO

To Army Medical School, Washington, D. C., for instruction, Lieuts. Maurice L. Allen, Albert L. Jones, Cleveland; Atlee R. Olmstead, Marshallville.

To Boston, Mass., for instruction in orthopedics, Lieuts. Charles M. Paul, Cincinnati; Barney J. Hein, Toledo.

To Camp Taylor, Louisville, Ky., from Cleveland, O., for duty as tuberculosis specialist and assistant to the Army Medical Staff, Capt. Milton J. Lichty, Cleveland.

To Camp Wheeler, Macon, Ga., from Walter Reed General Hospital, for duty as tuberculosis specialist and assistant to the Army Medical Staff, Capt. Samuel Hindman, Columbus.

To Fort Benjamin Harrison for instruction, Capt. Edward D. Sinks, Lima; Lieuts. Clyde K. Startzman, Bellefontaine; Melville D. Saash, Bluffton; Wiley T. Sprague, Chauncey; Walter H. Mytinger, Cincinnati; Samuel Zielonka, Cincinnati; Verner T. Scott, Clarksburg; Adlai E. Callaghan, Cleveland; Paul F. Davidson, Cleveland; Rudolph S. Reich, Cleveland; Ralph H. Sill, Cleveland; John M. Steel, Cleveland; John W. Tippie, Cleveland; James N. Wychgel, Cleveland; Nicholas L. Zinner, Cleveland; Clarence J. Schirack, Coldwater; Elgie R. Shaffer, Columbus; Otto N. Warner, Conneaut; Ivan L. Biggs, Custar; Warde B. Smith, Frankfort; Zalmon O. Sherwood, Geneva; Harry W. Shaw, Junction City; Donald De Costa Shira, Larue; William T. Stewart, Morning Sun; Jaffray J. Vega, National Military Home; Murray E. Reeder, Ohio City; Owen B. Van Epp, Port Clinton; Gale C. Guthrie, Uhrichsville; Edward McD. Cass, Utica; Harvey N. Trumbull, Woodville; David B. Phillips, Youngstown.

To Neurological Institute, New York, N. Y., for a course of study in his specialty, Lieut. John C. George, Dayton.

OKLAHOMA

To Camp Bowie, Ft. Worth, Tex., for duty, Lieut. Albert N. Earnest, Muskogee.

To Fort Worth, Tex., from Fort Riley, for duty, Lieut. Ross D. Long, Oklahoma.

OREGON

To Washington, D. C., and report to the Chief of Staff for temporary duty Army War College, and relieved from duty with the 42d Division, Camp Mills, L. I., Lieut. Spiro Sargentich, Portland.

PENNSYLVANIA

To Army Medical School, Washington, D. C., for instruction, Lieuts. Don C. Kyper, John R. T. Snyder, Altoona; Torrance J. Hanlon, Donora; Harry C. Fulton, Lancaster; Ralph E. Conn, Monessen; Harry F. Bailey, Monongahela; Humbert A. Granelli, David W. Kramer, Philadelphia; Galen D. Castleburg, Ralston; Valentine B. Eiler, Titusville.

To Boston, Mass., for instruction in orthopedic work and on completion of this course to proceed to New York (N. Y.) Post Graduate Hospital for further instruction, Lieuts. Ralph L. Rutledge, McKeesport; Robert E. Davison, James L. Gilmore, Pittsburgh.

To Camp Hancock, Augusta, Ga., from Phipps Psychopathic Clinic, Baltimore, Md., to make examinations in his specialty, Lieut. George P. Ard, Woodward.

To Camp Mills, Garden City, L. I., for duty with 42d Div., Major George S. Crampton, Philadelphia.

To Camp Shelby, Hattiesburg, Miss., from Fort Oglethorpe, for temporary duty to conduct cardiovascular examinations, Lieut. John H. Musser, Jr., Philadelphia.

To Fort Benjamin Harrison for a course of instruction, Lieuts. Eugen G. Reinartz, Solon L. Rhode, Charles A. White, Philadelphia; Howard L. Farquhar, Pittsburgh; Harry E. Garman, Spangler.

To Walter Reed Hospital, Tacoma Park, D. C., and report in person to commanding officer for special instruction in tuberculosis examinations, Lieut. William C. Spalding, Cresson.

To Washington, D. C., and report in person to the Surgeon-General of the Army for temporary duty in that office, Lieut. Floyd E. Keene, Philadelphia.

Par. 4223, Sept. 19, 1917, War Dept., as relates to Lieut. Alexander H. Colwell, Pittsburgh, is revoked.

To his home from Fort Niagara, N. Y., Lieut. David Riesman, Philadelphia.

PHILIPPINE ISLANDS

To Camp Pike, Little Rock, Ark., for duty with Ambulance Co. No. 44, Lieut. Seth L. Cox, Atimonan.

RHODE ISLAND

To Camp Upton, Yaphank, L. I., from Walter Reed General Hospital, for duty as tuberculosis specialist and assistant to the Army Medical Staff, Capt. James L. Wheaton, Pawtucket.

To Fort Benjamin Harrison for instruction, Lieut. Michael H. Scanlon, Westerly.

To Fort Oglethorpe, from school of Military Roentgenology, Boston, Mass., for instruction, Lieut. Jacob S. Kelley, Providence.

TENNESSEE

To Army Medical School, Washington, D. C., for instruction, Lieut. Clarence H. Glover, Memphis.

To Fort Benjamin Harrison for instruction, Lieut. Charles A. Robertson, Ridgetop.

To Fort Des Moines, Ia., for instruction, Lieut. Jonathan N. Rucker, Gallatine.

TEXAS

To Camp Kearny, Linda Vista, Calif., to make examinations in his specialty, Lieut. James W. Hill, Dallas.

To Fort Benjamin Harrison for instruction, Lieut. Wallace B. Guinn, Tivoli.

To Fort Des Moines, Ia., for instruction, Lieut. Allen A. McDonald, Calvert.

To Watertown, N. Y., from Army Medical School, to inspect ambulance bodies, Major Harold W. Jones, San Antonio.

VERMONT

To Camp Meade, Annapolis Jct., Md., from Fort Sheridan, Ill., for duty, Lieut. Horatio N. Jackson, Burlington.

VIRGINIA

To Army Medical School, Washington, D. C., for instruction, Lieut. Rockwell E. Smith, Crozet.

To Camp Green, Charlotte, N. C., from Neurological Institute, New York, N. Y., to make examinations in his specialty, Lieut. Paul V. Anderson, Richmond.

To Fort Benjamin Harrison for instruction, Lieuts. George B. Harrison, Colonial Beach; Robert J. Styers, Jetersville; John H. Hare, Newland; Ira Hurst, Parksley; Granville Eastham, Rapidan; Robert E. Timberlake, Junius E. Warinner, Richmond; Ernest H. Muse, Roanoke.

To Rockefeller Institute for Medical Research, New York, N. Y., for a course of instruction in laboratory work, Capt. Erasmus G. Hopkins, Richmond.

WASHINGTON

To Los Angeles, Calif., for a course of instruction in military roentgenology, Lieut. Roy C. Baumgarten, Seattle.

To Mineola, Long Island, for the purpose of making inspection of the aviation camp, Col. George H. Crabtree, Fort Lawton.

WEST VIRGINIA

To Fort Benjamin Harrison for instruction, Lieuts. George W. Shriver, Clendenin; James O. Hicks, Huntington; Charles G. Willis, Kingston; Frank C. Shafer, Roanoke; Harry R. Parker, Williamson.

WISCONSIN

To Boston State Hospital, Boston, Mass., from Fort Riley, for a course of study in his specialty, Lieut. Charles C. Rowley, Winnebago.

To Camp Meade, Annapolis Jct., Md., from Fort Sheridan, Ill., for duty, Lieut. Ralph Kayeen, Oconomowoc.

To Phipps Clinic, Baltimore, Md., for a course of study in his specialty, Lieut. William J. Fleming, Wauwatosa.

Medical News

(PHYSICIANS WILL CONFER A FAVOR BY SENDING FOR THIS DEPARTMENT ITEMS OF NEWS OF MORE OR LESS GENERAL INTEREST: SUCH AS RELATE TO SOCIETY ACTIVITIES, NEW HOSPITALS, EDUCATION, PUBLIC HEALTH, ETC.)

ILLINOIS

Rosenow in Rock Island.—At a special meeting of the Rock Island County Medical Society, held in Rock Island, September 27, the essayist of the evening was Dr. Edward C. Rosenow, Rochester, Minn., who spoke on "Infantile Paralysis."

Personal.—Drs. William E. Buehler and Andrew M. Harvey, Chicago, have been elected directors of the public safety commission in Cook County.——Dr. Clara E. Hayes of the Peoria State Hospital has been appointed superintendent of the State Training School for Girls, Geneva.

Work for the Insane.—On account of the shortage of knit underwear and stockings due to the war, the state welfare commission has determined on installing the machinery at the Elgin State Hospital for making needed articles of clothing, as well as brooms, brushes, furniture and shoes.

Sanitary Assignments.—Dr. C. St. Clair Drake, Springfield, director of the public health of the state, has announced the following assignments: Dr. Clarence W. East, Evanston, detached from Camp Grant, Rockford, to investigate poliomyelitis in Cook County; Dr. Arthur Pearman, medical health officer for Camp Grant health district; Dr. Alexander F. Stewart, Oneida, health officer for the Western District; John A. Kappelman, Evanston, relieved as medical officer of the Fort Sheridan District, excepting special assignments, and detailed to the Northwest Health District, with headquarters in Chicago; Major John A. Robison, M. R. C., U. S. Army, medical officer for the Fort Sheridan health district, and Dr. Charles E. Crawford, assigned to supervision of the Northwestern health district, Rockford.

Chicago

Personal.—Dr. Clarence W. Leigh has been appointed city physician, succeeding Dr. Michael J. Purcell.——Dr. James M. Neff, who was on duty with the Murphy Unit in Europe for several months, has returned and resumed practice.

One Million Dollars for Hospital.—At the November election, the people of Cook County will be asked to approve a bond issue of $1,000,000 for the erection of two hospitals as branches to Cook County Hospital. The first, to accommodate 200 patients, is asked for South Chicago, and the second, in the stock yards district, is intended as an emergency hospital.

Poliomyelitis.—September 28, there were said to be 155 cases of infantile paralysis in Chicago and between forty and fifty cases in Cook County outside of the city. Eleven new cases, with four deaths, were reported in Chicago for the date mentioned. According to a statement of the health commissioner, 50 per cent. of the cases in the present epidemic had proved fatal. Seventeen meetings were held in as many schoolbuildings of the city on the date mentioned at which physicians gave talks to more than 12,000 citizens on the disease and measures for its prevention.

Military Assignments.—Major Harry D. Orr, M. C., assigned to the One Hundred and Twenty-Second Infantry, has been appointed director of Illinois field ambulance companies. Capt. Robert J. Gay has succeeded Major Orr as regimental surgeon.——Major William J. Swift, M. C., has been appointed director of Illinois field hospital companies at Camp Logan, Houston, Texas.——Dr. Cassius C. Rogers has been commissioned major, and Dr. J. Lloyd Hammond, lieutenant, in the Medical Corps, Illinois National Guard, and assigned to the First Reserve Infantry.——Dr. Maurice L. Blatt has been commissioned major, and Dr. Arthur H. Parmelle, lieutenant, in the Medical Corps, and assigned to duty with the Second Illinois Reserve Infantry.

INDIANA

Personal.—Dr. William Shiner, superintendent of the Pathological Laboratory of the Indiana State Board of Health, has been offered the professorship of pathology in the University of Texas.——Dr. Daniel F. Randolph, Waldron, has entered St. Vincent's Hospital, Indianapolis, on account of injuries received in the overturning of his automobile recently.

State Society Meeting.—The Indiana State Medical Society met in Evansville, September 26, 27 and 28, and elected the following officers: Dr. Joseph R. Eastman, Indianapolis, president; Drs. Victor V. Cameron, Marion; Harvey H. Martin, Laporte, and Eugene A. Sturm, Jasper, vice presidents, and Dr. Charles N. Combs, Terre Haute, was reelected secretary-treasurer. It was voted unanimously to hold the 1918 meeting in Indianapolis.

IOWA

Poliomyelitis.—What appeared to be a new outbreak of poliomyelitis in Davenport occurred, September 25, when three new cases were reported in the preceding twelve hours. In an effort to check the epidemic in Davenport the health authorities made a regulation, September 20, that no mail would be allowed to go out from homes quarantined on account of the disease, and the postal authorities acquiesced in the rule and returned mail from such houses.

MARYLAND

Typhoid Fever Epidemic.—An epidemic of typhoid fever has broken out at Arlington, Baltimore County. To date there are fourteen cases of the disease, among them five in one family and six in another. Dr. Henry A. Naylor, Pikesville, who is health officer of the district, reported the cases to the state board of health.

Personal.—Dr. Thomas B. Futcher, Johns Hopkins Hospital, will sail shortly for England, where he will be in charge of the Canadian Military Hospital at Orpington, Kent. Although Dr. Futcher has been living in Baltimore for many years, he is a British subject, being a Canadian by birth. He has been commissioned a lieutenant-colonel in the Canadian Expeditionary Force.

MONTANA

Hospital Addition Completed.—A twenty-room addition has been made to the Park Hospital, Livingston, at a cost of $20,000. The hospital now has a bed capacity of fifty.

Personal.—Dr. William C. Riddell, Helena, has been commissioned major, M. C., Mont. N. G., and assigned to the Second Infantry.——Dr. Michael J. Casserly, Hamilton, who is on duty with the Canadian Army Medical Corps in France, has been wounded.——Dr. James H. Irwin, Great Falls, has been commissioned major, and ordered to duty at American Lake, Washington.

Epidemic Diseases.—Since January, only twenty-four cases of infantile paralysis have been reported to the state health authorities. This compares favorably with 1916, when 108 cases were reported during the same period. During September, twelve cases of smallpox were reported in Livingston.——In Butte, fifteen cases of smallpox were reported during the first half of September.

NEW YORK

Personal.—Dr. Charles G. Wagner, superintendent of the Binghamton State Hospital, is reported to be seriously ill at his home.——Dr. Moses Rosenberg, Rochester, surgeon on the British steamer *Verdi*, which was reported to have been sunk by a German submarine, was saved.

New Officers.—At the annual meeting of the Eighth District Branch of the Medical Society of the State of New York, held at Buffalo, September 13, the following officers were elected: president, Dr. Albert T. Lytle, Buffalo; vice presidents, Drs. Edward Torrey, Olean, and William R. Thomson, Warsaw; secretary, Dr. Lyman C. Lewis, Belmont, and treasurer, Dr. Fitch H. Van Orsdale, Belmont.

Quarantine at Camp Mills.—The Forty-Second Division of the National Guard Army encamped near Mineola, L. I., is threatened with an outbreak of cerebrospinal meningitis. Dr. Fred M. Meader of the Surgeon-General's Office, who has been sent to the camp to handle the situation, has established three quarantines. Cultures taken in the One Hundred and Sixty-Seventh Infantry have shown a number of meningitis carriers. These have been isolated, and no further spread of the malady is anticipated. There was one death in the regiment which lead to the investigation.

New Vital Economics Department at Rochester.—The University of Rochester is organizing a department, to be known as the Department of Vital Economics, as an extension of the Department of Household Economics of the Mechanic's Institute. The course will be arranged with a view to preparing young men and women for more rational physical living and to the training of students for positions in public health offices. Dr. John R. Murlin, who for the past eight years has been professor of physiology in the Medical School of Cornell University, has been appointed director. This department, the first of its kind in this country, has been made possible by a bequest of $800,000 made available by the will of Lewis P. Ross, the income of which may be used "to the end that human life may be prolonged with increased health and happiness."

Civil Service Examinations.—The civil service commission announces that examinations will be held, November 3, to fill the following positions:

Assistant bacteriologist, state department of health; open to men and women; salary $1,200 to $1,800; ages 21 to 35 years; candidates must have a thorough knowledge of the principles of bacteriology, and considerable practical experience in that work, including preparation of purified antitoxins.

Assistant physician, regular or homeopathic, to provide eligibles for positions as assistant physician in the state hospitals and other positions of a similar nature; salary $1,200 to $1,600, with maintenance; open to men and women, licensed medical practitioners of New York; graduates from a registered medical school, and with at least one year's experience on the resident medical staff of a hospital, or medical intern or clinical assistant in a state hospital, or three years' consecutive practice of medicine.

Applications should be made to the State Civil Service Commission, Albany, prior to October 22.

New York City

New York Academy of Medicine.—The meetings of the New York Academy of Medicine for the season 1917-1918 began on the evening of October 4 with an address by Dr. Alexis Carrel on "Principles of the Treatment of Wounds."

Mental Examination of Troops.—The work of making a mental examination of the men in the Twenty-Seventh Division has been begun by Lieut. Samuel Leopold, formerly of the University of Pennsylvania, who has just completed work of this kind in the Pennsylvania National Guard.

Institution for Feebleminded Children.—The cornerstone of the first of a group of eleven buildings, to be known as the Institution for Feebleminded Children, which the Department of Charities is erecting on Randall's Island, was recently laid with appropriate ceremonies. The principal speakers were Mayor Mitchell and Commissioner of Charities John A. Kingsbury.

Draft Board Doctor on Trial.—The trial of Dr. Henry Seligman, a volunteer examining physician for District Board 52, charged with accepting a bribe to release a conscript from military service, was recently reached. The testimony produced by the regular physicians on the board show that the defendant had examined and found unfit for service a man who, on reexamination, easily passed all physical tests.

Columbia University Opens.—The respective institutions of Columbia University opened their doors for the year 1917-1918 by the usual addresses. Among the most notable of these was that of Prof. Hans Zinsser, who made the opening address for the medical school. His theme was "Opportunities for National Service," and his summary is characterized as a suitable profession of faith for loyal Germans in this country.

Springs Cause Typhoid Fever in New York.—The search for the source of a small outbreak of typhoid fever in the Bronx has led to the discovery that the infection was probably transmitted by the drinking of water from an infected spring fed by drainage from fertilized fields in the vicinity. Laboratory tests of the water of several other springs in that section of the city indicate that it is unsafe for drinking. The department of health has placarded a number of these springs as unfit for drinking purposes, and has issued a warning against drinking the water from springs within the city limits.

OHIO

Schools Ordered Closed.—The public and parochial schools of East Liverpool, which opened September 10, were ordered closed for one week on the discovery of two cases of anterior poliomyelitis.

Poliomyelitis.—Opening of the Mansfield schools was postponed until September 17 on account of the fear of the spread of poliomyelitis.——At Wooster a similar postponement was had. September 6, only two patients remained under treatment.——In Cleveland eighteen cases have been treated since June 1, none of them proving fatal.

Academy Meeting.—At the meeting of the Cleveland Academy of Medicine, September 28, Lieut.-Col. Ethelbert B.

Hardy, D. S. O., in command of the Military Base Hospital, Toronto, narrated "Experiences of Medical Officers at the Front," and Lieuts. Benjamin R. McClellan, Xenia, and Murray B. McGonigle, Toledo, spoke on "The Medical Department of the Army."

Schoolteachers Subnormal Physically.—At Cincinnati, twenty-four of the forty-two schoolteachers who took the physical examination for positions in the public schools were found to be underweight. None was rejected; one was conditioned on account of defective vision and six others were advised to consult oculists; two were found to have impaired hearing, and one, diseased tonsils.

Sanatorium Capacity Doubled.—The capacity of the Warrensville Tuberculosis Sanatorium has been doubled since January 1 of last year. The present capacity of the institution is 390. The Children's Colony can admit forty-five more patients than before, and by the remodeling of two old structures accommodation has been provided for sixty additional adults. Three more cottages, with the capacity of twenty each, will be completed within a few weeks.

Personal.—Dr. Charles F. Hoover, Cleveland, assistant director of Lakeside Base Hospital No. 4, has returned on leave of absence.——Dr. O. van der Stricht, Ghent, Belgium, for the last two years fellow in Cytology in the Anatomical Laboratory of Western Reserve University, Cleveland, has been appointed lecturer in anatomy in the Johns Hopkins University, Baltimore.——Dr. Carell S. Mundy, superintendent of the Toledo Contagious Disease Hospital, has resigned to enter the Army medical service.——Dr. Clarence D. Selby, Toledo, has resigned as commissioner of public health, and Dr. Charles Dreyer, city physician, has been appointed his successor.——Dr. Burt A. Marquand, Dover, suffered fracture of several ribs in a collision between his automobile and an interurban car.——Dr. Sterling H. Ashum has been appointed city physician of Dayton, succeeding Dr. Daniel G. Reilly, deceased.——Dr. William K. Ruble, Martinsville, has been elected treasurer of Clinton County. ——Dr. Ralph A. Bunn, Dayton, has been appointed assistant chief surgeon at the Dayton Soldiers' Home.——Dr. Roy E. Bushong, Athens, has been appointed acting superintendent of Athens State Hospital during the absence, on leave, of Dr. Ora O. Fordyce.

PENNSYLVANIA

Dysentery Epidemic.—An epidemic of dysentery is reported in the townships on the west side of the Susquehanna River. In Larksville and Plymouth there are reports of 295 persons ill with the disease, with, thus far, fifteen deaths.

Personal.—Dr. Arthur A. Woods, Erie, has moved to California.——Dr. Henry L. Orth announces his approaching retirement, after twenty-seven years' service, as superintendent of the Pennsylvania State Lunatic Hospital.

New Officers.—At the annual meeting of the Seventeenth Censorial District Medical Association, held in Sunbury, September 6, Dr. John W. Bruner, Bloomsburg, was elected president of the Pennsylvania State Lunatic Hospital, Harrisburg.

Branch County Society Organized.—The physicians from the northern portion of Washington County met in Burgettstown, September 14, and organized the Northern Branch of the Washington County Medical Society, and elected Dr. Audley O. Hindman, president.

Officers Elected.—At the recent meeting of the Pennsylvania State Medical Society, the following officers were elected: president, Dr. Frederick L. Van Sickle, Olyphant; vice presidents, Drs. Walter F. Donaldson, Pittsburgh; Benjamin F. Royer, Harrisburg; David N. Dennis, Erie, and Walter J. Leaman, Lancaster; secretary, Dr. Cyrus L. Stevens, Athens; assistant secretary, Dr. Christian B. Longenecker, Philadelphia; treasurer, George W. Wagoner, Johnstown; trustees, Ira G. Shoemaker, Reading; Frank G. Hartman, Lancaster; Harry W. Albertson, Scranton; Spencer M. Free, Dubois; Donald Guthrie, Sayre, and Jay B. F. Wyant, Kittanning.

Philadelphia

Personal.—Lieut. Howard F. Keating, on duty on the western front, was slightly wounded during the air raid of September 24.

University of Pennsylvania Opening Exercises.—The University of Pennsylvania opened its 177th college year in Weightman Hall, September 28, with a student body much depleted by enlistments for the war. About 60 per cent. of the old students were missing, although the freshman class is larger than ever. The medical department has an exceptionally large entering class. In spite of the large number from the department who enlisted, the total enrolment of medical students is increased. A number of changes have been made. In the medical school, Drs. Joseph McFarland, Horatio C. Wood, Jr., John C. Heisler and Seneca Egbert have been added to the faculty. Dr. Allen J. Smith takes the place of Dr. William Pepper as dean.

UTAH

Smallpox.—During the week ending September 15, ten cases of smallpox were reported in Salt Lake City.——Lark is under strict quarantine on account of smallpox.

Called to California.—Dr. Daniel H. Calder, for many years superintendent of the State Mental Hospital, Provo, has been appointed a member of the faculty of the Medical College of the University of Southern California, Los Angeles, and a member of the staff of the Los Angeles County Hospital.

State Association Meeting.—The twenty-third annual meeting of the Utah State Medical Association was held at the Hotel Utah, Salt Lake City, September 12-14, under the presidency of Dr. Samuel C. Baldwin, Salt Lake City. Salt Lake City was selected as the place of meeting for 1918, and the following officers were elected: president, Dr. Frederick Stauffer, Salt Lake City; vice presidents, Drs. Andy J. Stewart, Provo; Edward I. Rich, Ogden, and Ernest Van Cott, Salt Lake City; secretary, Dr. W. Brown Ewing, Salt Lake City (reelected); treasurer, Dr. Francis A. Goeltz, Salt Lake City; councillor, Eugene H. Smith, Ogden; delegate to the American Medical Association, Dr. Thomas J. Howells, Salt Lake City, and alternate, Dr. Joseph R. Morrell, Ogden. Among the features of the meeting were the illustrated lecture by Dr. Richard C. Corwin, Pueblo, Colo., on "War Surgery in France and America," in which he detailed the Carel-Dakin treatment of wounds, and the address of Dr. Palmer Findley, Omaha, on "Obstetrics as a Lost Art."

WISCONSIN

Typhoid Fever at Marshfield.—During the week ending September 15, twenty-six cases of typhoid fever were reported to the health officers of Marshfield.

Tuberculosis Board Appointed.—The Surgeon-General has appointed a tuberculosis commission which is making a survey of the troops at Camp Robinson, near Sparta. The personnel of the commission is as follows: Drs. Arthur J. Patek, Lawrence G. Sykes, J. Gurney Taylor, James D. Madison and William B. Ford.

Sanatorium Items.—The issue of bonds for $40,000 for the addition to Blue Mound Sanitarium has been approved by Judge C. B. Woods.——Work has been commenced on the infirmary building of the Madison Anti-Tuberculosis Association. The general contract has been let for $6,775. The infirmary will be a frame structure, two stories in height, and 36 by 60 feet.

Personal.—Dr. Frank H. Turner, Frederic, is reported to be ill with pneumonia.——Drs. Raymond G. Arveson and John Diamond have leased the Frederic Hospital to the Sisters of St. Joseph, Superior.——Health Commissioner George C. Ruhland, Milwaukee, has resigned, and has been called to duty at Fort Sill. The employees of the department presented Dr. Ruhland with an alligator writing case and a gold wrist watch.

Changes of Name of Public Institutions.—The following changes in the names of public institutions in Milwaukee County were recently announced: Milwaukee County Alms House to Milwaukee County Infirmary; Milwaukee County Home for Dependent Children to Milwaukee County Home for Children; Milwaukee County Hospital for Acute Insane to Milwaukee County Hospital for Mental Diseases; Milwaukee County Asylum for Chronic Insane to Milwaukee County Asylum for Mental Diseases.

Acts Passed by Last Legislature.—The legislature, during its last session, passed the following bills to strengthen the facilities of the state in its fight against tuberculosis: An act appropriating $15,700 for the erection of a cottage, workshop and electric plant at Tomahawk Lake Camp, and $15,000 for a refectory and employees' building at the camp; an act appropriating $75,000 for the erection of a new state sanatorium in northern Wisconsin, and an act increasing the state aid for patients in county tuberculosis sanatoriums from $125,000 to $141,000 for the first year of the biennium, and $165,000 for the second year.

Vigilance Committee Advised.—The Wisconsin Antituberculosis Association urges the appointment of a citizens' tuberculosis vigilance committee in every community, the duties of which shall be to request examining boards to obtain records of all active and suspected cases of tuberculosis, to secure the volunteer services of physicians to whom the board examiner may refer all suspected and borderline cases for more thorough examination; to secure proper care and instruction of the patient by the follow-up system, and to assist, where necessary, in securing additional sanatorium facilities for the care of these cases and of others, with special reference to returned soldiers.

Hospital Notes.—The directors of the Plymouth Hospital announce the opening of that institution, October 1. The hospital will accommodate thirty-five patients.——The new Riverview Hospital, Grand Rapids, erected at the cost of $25,000, was opened for public inspection, September 4. The building is two stories and basement in height, 75 by 81 feet, and is thoroughly equipped.——The Winnebago County Medical Society and the Oshkosh Medical Club have endorsed the plan of Lakeside Methodist Hospital Company, to take over and operate Lakeside Hospital.——Dr. Sylvester G. Pake, formerly of Superior, has moved to Hayward, where he has leased the parochial school building, which is being remodeled for a hospital.

GENERAL

National Board Examination.—The National Board of Medical Examiners will hold its next examination in Chicago, October 10 to 18, inclusive. About sixty-five physicians have applied. Others who desire to take the examination should apply at once to the secretary, Dr. John S. Rodman, 2106 Walnut Street, *Philadelphia*.

Bequests and Donations.—The following bequests and *donations* have recently been announced:

Faculty of Medicine, McGill University, Montreal $500,000; Montreal General Hospital, $500,000; Montreal Maternity Hospital, $100,000, and Royal Institute for the Advancement of *Learning (McGill), for* MacDonald College, $1,000,000, by the will of Sir William MacDonald, Montreal, Chancellor of McGill University.

Mount Sinai Hospital, New York, $100,000, to be used for *the purpose of* Cancer Research Work, by the will of Julian A. Hillman.

Tri-State Physicians Elect Officers.—At the annual meeting of the Tri-State District Medical Society, held in Dubuque, September 5, the following officers were elected: president, Dr. William B. Peck, Freeport (reelected); honorary president, Dr. James R. Guthrie, Dubuque; vice presidents, Drs. Clarence A. McGuire, Dubuque; Edwin S. Gillespie, Wenona, Ill., and Lawrence H. Prince, Madison, Wis., and secretary-treasurer, Dr. Nelson C. Phillips, Freeport, Ill. (reelected).

New Officers for Missouri Valley Society.—At the thirtieth annual meeting of the Medical Society of the Missouri Valley, held in Lincoln, Neb., September 20 and 21, the following officers were elected: president, Dr. Artemas J. MacKinnon, Lincoln, Neb.; vice presidents, Drs. Thomas M. Paul, St. Joseph, Mo., and Paul E. Gardner, West Hampton, Iowa; secretary, Dr. Charles Wood Fassett, Kansas City, Mo. (reelected for the sixteenth term), and treasurer, Dr. Oliver C. Gebhart, St. Joseph, Mo. Omaha was selected as the next place of meeting.

Negro Professional Men Elect Officers.—At the annual meeting of the National Medical Association, composed of colored physicians, dentists and pharmacists, held in Philadelphia, August 29 and 30, the following officers were elected: president, Dr. George A. Cabaniss, Washington, D. C.; president elect, Dr. D. A. Ferguson, D. D. S., Richmond, Va.; vice presidents, Drs. Henry M. Green, Knoxville, and John P. Turner, Philadelphia; chief secretary, Dr. Walter G. Alexander, Orange, N. J., and assistant secretary, A. L. Jackson, Phar.D., Philadelphia.

Tuberculosis Conferences.—Conferences on antituberculosis, under the auspices of the National Association for the Study and Prevention of Tuberculosis, will be held in October and November, as follows:

North Atlantic Tuberculosis Conference at Baltimore, October 17 and 18.

New England Conference in Rutland, Vt., October 4 and 5.

Mississippi Valley Conference in Minneapolis and St. Paul, October 8, 9 and 10.

Northwestern Conference in Portland, Ore., October 15 and 16.

Southwestern Conference in Grand Canyon, Ariz., October 22 and 23.

Southern Conference in Chattanooga, Tenn., November 9 and 10.

The war problems of tuberculosis will be the dominant subject of discussion at all these conferences.

FOREIGN

International Child Welfare Congress.—The second International Child-Welfare Congress will be held in Montevideo in 1918. The first congress was held in Buenos Aires in July, 1916. The president of Uruguay, through the *Diario Oficial* of Aug. 10, 1917, issued a decree providing for the holding of the congress, March 17 to 24, 1918, under the auspices and protection of the government. A monthly sum of 100 pesos gold will be paid by the Uruguayan government to the executive committee appointed by the first congress. Invitations will be sent to all other American countries to participate by sending delegates to the congress.

Society for Research on Medical Biology.—The Swiss Société helvétique des Sciences naturelles was the original model on which Virchow founded the German organization which meets once a year for what are popularly called the *Naturforscher* congresses. The venerable Swiss association now announces the formation of a section or subsociety devoted to medical biology, to be known as the Société de Médecine et de Biologie. Professor Hedinger of the University of Basel is the moving spirit in the matter. The inaugural meeting is to be held this month at Zurich. It is hoped for a large membership among physicians interested in medical biologic questions.

CANADA

Personal.—Capt. Roland W. Young, Oshawa, Ont., recently returned from two years' service with the R. A. M. C. in Malta and Egypt, has been appointed on the staff of the Whitby Military Hospital, Whitby, Ont.——Sir James A. Grant, M.D., Ottawa, Ont., was recently tendered a reception at Detroit by a number of prominent citizens.

Medical Writers Censored.—Articles on medical and surgical subjects connected with the war having been appearing from time to time in various Canadian and other medical periodicals, attention has been called to this by special orders issued by the British Expeditionary Forces, of which the Canadian Expeditionary Forces form a part, and hereafter physicians and surgeons are forbidden to contribute such articles without securing the consent in advance of publication of the Director-General of Medical Services, to whom all articles on such subjects must be submitted.

***Canadian* Public Health Association Meeting.**—The annual meeting of the Canadian Public Health Association was held in Ottawa, September 27 and 28. Dr. Joseph D. Page, Quebec, in his presidential address, dealt principally with the immigration problems of Canada as compared with those of the United States, considering that the holding of steamship companies, by the latter, responsible for the class of immigrants brought to the country, was much in advance of Canadian methods. In advocating a ministry of public health, he thought Canada would not get that until there was a strong public sentiment behind it. There was need for getting ready now in preparation for coming immigrants after the war. Capt. Gordon A. Bates, Toronto, C. A. M. C., read a paper on venereal diseases, contrasting the efficiency with which those diseases were dealt with in the army, and the comparative indifference of the civic authorities. He gave statistics of 417 cases recently analyzed, which showed seventy infected men under 20 years of age and 144 between 21 and 25 years. About 260 were single men and thirty-six were married, the balance being (likely) widowers. In 295 cases the influence of alcohol was denied. Forty-four were classed as professionals, while in 127 cases no money was paid. Sixty cases of infection took place in the boarding houses of the females; 119 cases out of doors in parks, etc. Dr. Bates considered that immediate steps should be taken to facilitate early diagnosis and prompt treatment. Venereal diseases should be made quarantinable immediately, and a law passed in Canada to that effect. Major Maxwell Lauterman, Montreal, stoutly advocated a Minister of Public Health for Canada, as venereal diseases were the greatest menace of the civilized world today, bar none. Mr. Miles M. Dawson, an actuary of New York, and Mr. I. M. Rubinow, New York, dealt with the question of health insurance. They strongly advocated noncommercial insurance. Dr. Charles J. C. O. Hastings, M. O. O. H., Toronto, took up the question of "patent medicines" and alcoholic mixtures. He said there are too many "cures" on the market containing an excess of drugs and alcohol, the latter particularly since prohibition had gone into effect. The consumption and cancer "cures" are robbing the victims of those diseases of the only chance they had of being cured. Manufacturers of such concoctions are criminals of the worst type and highest degree. There is no worse menace to the public than the makers of such alleged cures. Dr. Hastings advocated health insurance on the same plan as in England, and he believed the government would soon have to take action. Dr. Alan G. Brown, Toronto, deplored the fact that Canadian mothers do not do their duty in respect to maternal nursing. He quoted statistics to prove that American women and even foreign women were 50 per cent. ahead of the women of Canada in this respect. Canada, he averred, stands alone for total inactivity on the part of the state in regard to child welfare.

PARIS LETTER

PARIS, Sept. 2, 1917.

The War

PENETRATING WOUNDS OF THE KNEE-JOINT

Dr. Mauclaire, agrégé professor and hospital surgeon at the Faculté de médecine at Paris, has submitted a report to the Société de chirurgie of Paris on a communication sent to the society by Dr. Stern in October, 1916, which dealt with articular wounds of the knee treated before Loubat and Moiraud had extolled the merits, in such cases, of immediate mechanical disinfection followed by primary suturing, a method which Stern has likewise since applied with satisfaction.

From the study of seventy-one cases taken from his former practice, Stern draws the following conclusions as regards indications for operation:

He has encountered several cases of simple intra-articular setons, caused by a rifle bullet, with punctiform orifices at the point of entrance and exit, and without bony lesions. Compression and immobilization sufficed to cure these patients, if carefully attended to, and extensive articular movement was preserved. It goes without saying, furthermore, that, if there is an intra-articular projectile, and there is the slightest sign of articular reaction, it is necessary to intervene in these wounds with punctiform seton. Exploratory arthrotomy is indicated immediately after the wound is received, in order to remove the isolated splinters, or to extract an intra-articular projectile, the presence of which roentgenography has revealed. The U-shaped subpatellar incision should be performed, unless the lesions are diffuse. The parapatellar incision is often sufficient and is not so destructive of tissue as the subpatellar. Arthrotomy and evacuation are indicated at the onset of infectious arthritis with extravasation, and this may suffice, provided immediately afterward the symptoms of articular septicemia are seen to disappear. Typical primary articular resection should be resorted to if there are extensive bony lesions. Secondary resection will be done if the suppurative arthritis becomes complicated by grave septicemic symptoms. Stern favors general anesthesia by means of ethyl chlorid, since it causes only a slight shock to the patient. He strongly disinfects the articulation with ether. He makes as few changes of dressings as possible. He uses a plaster apparatus which consists of two distinct segments (one including the thigh and one including the lower leg), joined together by encircling bands and fitting one within the other, which makes it possible, after the twelfth day, to commence to draw the bony surfaces together, after the manner recommended by Chaput and Alquier. The posture of the foot should be carefully watched, as there is a tendency toward talipes equinus. Amputation of the thigh is, of course, imperative when the infection is very threatening or when the bony lesions are multiple and extensive.

In combating septicemic symptoms Stern uses injections of a 47 per cent. glucose solution, injections of colloidal gold, theobromin (which promotes diuresis), laxatives and perspiration induced by a system of electric bulbs placed under the bedcovers.

The immediate results were eight deaths out of seventy-one cases, or 11.2 per cent. (five deaths, or 15 per cent., out of thirty-three infected cases; three deaths, or 8 per cent., out of thirty-eight noninfected cases). Complete arthrotomies caused four deaths out of thirty-four cases (12 per cent.). Seven unilateral arthrotomies, four total rotulectomies, three partial rotulectomies, and seven typical total resections of the knee-joint did not occasion a single death. Three partial resections (condyle) caused one death. Ten amputations of the thigh resulted in three deaths (30 per cent.), and three cases in which the surgeon refrained from operating resulted in recovery.

The more remote results may be thus described: Of the twenty-seven arthrotomies that could be followed up to the time of their cicatrization and beyond, there were seven cases of total ankylosis, nine cases of partial ankylosis, eight cases in which the flexure equaled or exceeded 90 per cent. of the normal, and three cases of perfectly normal flexure. It is only proper to state, however, that a number of the patients who came under the second and third categories could be still benefited by mechanotherapy, and this treatment continued to be applied. Of the seven partial or total rotulectomies, cicatrization took place in three cases, in one of which almost complete mobility was secured, and in the other two cases there was almost complete ankylosis. Of the seven cases of typical resection of the knee-joint, it was possible to learn the later history in four instances. The age of the patients varied from 19 to 30 years. Of these four cases there were two cases of complete consolidation after three and a half months, one case of incomplete consolidation after 145 days, and one case of incomplete consolidation after ninety days.

A CENTER FOR VOCATIONAL REEDUCATION ESTABLISHED

Under the auspices of Fernand David, minister of agriculture, Justin Godart, undersecretary of state for the military medical service, and Medical Inspector Polin, director of the medical service of the military government of Paris, a center of vocational reeducation for the war wounded (both the wounded under treatment and the wounded who have been discharged from active service) has been created at the national school of agriculture at Grignon, in Seine-et-Oise.

The instruction at Grignon will comprise practical courses looking toward the reeducation of mind, nerve and muscle, such as courses in gardening, agricultural work, and all the trades that serve the needs of the agriculturist: saddle making, harness making, basket work, carpentry, iron and metal work, horseshoeing, masonry, cooperage, etc. The new institution can accommodate 500 students. For those who are discharged from active service but who cannot continue their antebellum vocation, courses of general instruction, in accountancy, stenography, typewriting, mechanical drawing, prosthetic dentistry, tailoring, hairdressing, domestic science and the manufacture of playthings, all of which are presided over by experts, have been established.

Potatoes in Relation to Bread Production

M. Maurice Viollette, food administrator, sent out recently a circular letter of inquiry addressed to the prefects of the various departments, asking them to express an opinion on the result of the experiments to be conducted with regard to the mixture of potatoes and flour in the preparation of bread. He received a large number of replies testifying to the fact that the experiments gave complete satisfaction. The report that the prefect of the department of Eure-et-Loir received on this subject from M. Carola, director of the agronomic station at Chartres, states that bread made with the addition of boiled potatoes in the proportion of 20 per cent. has been found equally as good, if not better, than the bread now in use. It has also been observed that it keeps fresh longer. A round loaf cut ten days after it was baked was still fit for consumption. On analysis this bread has been found to present the following composition:

Water	34.70
Ash	1.18
Nitrogenous material	6.90
Starch	56.50
Cellulose	0.72
Total	100.

This bread is capable of furnishing the human system with 253.6 calories per hundred grams of the material; that is to say, a figure equal to that of the bread now in use (white, rye and barley). In case of need, the potato would, then, constitute no mean resource in view of its power to improve the quality of bread. M. Viollette regards these experiments as conclusive, and has instructed the prefects, from now on, whenever there is a serious shortage in the grain crop, to take the necessary action to avoid waste of the potato supply. The potato is thus given an added importance, since it is possible to utilize it in the preparation of bread.

Marriages

Major Norman Thomas Kirk, M. C., U. S. Army, Fort Oglethorpe, Ga., to Miss Anna M. Duryea of New York City, at Fort Oglethorpe, Ga., September 21.

Capt. Harry Munn Godfrey, R. A. M. C., Charlottetown, P. E. I., to Miss Margaret W. Hawley of Brookline, Mass., in Boston, September 18.

Francis Dudley Buck, M.D., New York City, to Miss Clara B. Moody of East Northfield, Mass., in Brooklyn, September 18.

Marc Ray Hughes, M.D., St. Louis, to Mrs. Rosalie N. Livingston of Lake Crystal, Minn., at Edwardsville, Ill., September 20.

Francis Marion Pottenger, M.D., Monrovia, Calif., to Miss Caroline Margaret Lacy of Pasadena, Calif., September 14.

Lieut. William Washington Vaughan, M. C., U. S. Army, Manila, P. I., to Miss Mela K. Fairchild, at Manila, July 13.

Francis Bonneau Johnson, M.D., Charleston, S. C., to Mrs. Ritchie McGann of Washington, D. C., September 11.

Philip Edward Stangl, M.D., Paynesville, Minn., to Miss Josephine Friberg of St. Paul, in Chicago, September 13.

P. A. Surg. Harry Lee Brown, U. S. Navy, to Miss Hazel Robinson of Lewiston, N. Y., September 1.

Eerko Samuel Aeilts, M.D., Forreston, Ill., to Miss Grace Engle of McKee, Ky., August 18.

A. Lovett Dewes, M.D., to Miss Margaret Dakin, both of Haverford, Pa., September 15.

Deaths

William Conner Shaw, M.D., Pittsburgh; Bellevue Hospital Medical College, 1872; aged 71; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania, and the American Academy of Medicine; attending physician to Bethesda Hospital since 1889; physician to the Pittsburgh Free Dispensary from 1876 to 1882; for ten years surgeon to Mercy Hospital; died at the Allegheny General Hospital, September 18.

Lieut. Matthias Miller Wagner, M. R. C., U. S. Army, Albion View, Signal Mountain, Tenn.; University of Tennessee, Nashville, 1898; aged 41; a Fellow of the American Medical Association; on duty at Fort Story, Cape Henry, Va.; was drowned while swimming at Cape Henry, September 18.

Morey Charles Collier, M.D., Painted Post, N. Y.; Albany (N. Y.) Medical College, 1906; aged 38; a Fellow of the American Medical Association; formerly health officer of Corning, and visiting physician to the Corning Hospital; died at his home, September 16, from cerebral thrombosis.

Samuel B. Growdon, M.D., Cherokee, Okla.; Kentucky University, Louisville, 1902; aged 56; formerly a Fellow of the American Medical Association; a member of the Oklahoma State Medical Association, and president of the Alfalfa County Medical Society; died at his home, August 9.

Thomas Jefferson Lee, M.D., Rocky, Okla.; Vanderbilt University, Nashville, Tenn., 1883; aged 56; formerly a Fellow of the American Medical Association; a member of the Oklahoma State Medical Association, and a member of the council; died at his home, August 6.

John Earhart Morris, M.D., Indianapolis; Medical College of Indiana, Indianapolis, 1896; aged 48; formerly a Fellow of the American Medical Association; associate professor of surgery in the Indiana School of Medicine, Indianapolis; died at his home, August 25.

John A. Staral, M.D., Cleveland; Western Reserve University, Cleveland, 1904; aged 36; a Fellow of the American Medical Association; assistant in the tuberculosis dispensary in his alma mater; died in the Lakeside Hospital, Cleveland, September 17.

Alfred De Carre, M.D., Washington, D. C., George Washington University, Washington, D. C., 1889; aged 67; a veteran of the Franco-Prussian War; for many years an employee of the Treasury Department; died at his home, September 16.

Charles Gennerich, M.D., New York City; New York Homeopathic Medical College, New York City, 1896; aged 42; formerly professor of orthopedic surgery in the New York Medical College and Hospital for Women; died at his home, September 14.

Charles J. Ocasek, M.D., Chicago; Rush Medical College, 1893; aged 47; a well known Bohemian physician; while crossing the street, September 27, was struck by a streetcar and died in the ambulance while being taken to the hospital.

Harriet Scudder Mason, M.D., West Brighton, N. Y.; Eclectic Medical College of the City of New York, 1899; for sixteen years house physician of the Little Mother's Aid Association of New York; died at her home, September 17.

William Augustus Muhlenberg Schnecker, M.D., New York; Columbia University, College of Physicians and Surgeons, New York, 1899; aged 40; a member of the Medical Society of the State of New York; died at his home, September 13.

Charles Franklin Wackenhuth, M.D., Picture Rocks, Pa.; Western Pennsylvania Medical College, 1892; aged 56; a member of the Medical Society of the State of Pennsylvania; died in the Williamsport Private Hospital, September 13.

Edson Card, M.D., White Plains, N. Y.; Columbia University, College of Physicians and Surgeons, New York, 1882; aged 61; a member of the Medical Society of the State of New York; died at his home, September 9, from apoplexy.

Prementer Mullinix, Greencastle, Ind. (license, Indiana, 1897); aged 82; formerly a member of the Indiana State Medical Association; for many years a druggist; died at the home of his daughter, in Sioux City, Iowa, September 16.

Lacy Kindred Bobo, M.D., Maquoketa, Iowa; University of Louisville, Ky., 1889; aged 56; formerly a member of the Iowa State Medical Society; died at the home of his sister in Dallas, Texas, September 20, from cerebral hemorrhage.

John Milton Grosvenor, M.D., Middleton, Mass.; Dartmouth Medical School, Hanover, N. H., 1864; aged 78; assistant surgeon of volunteers during the Civil War; a manufacturing chemist; died at his home, September 21.

Howard W. Bassett, M.D., Richmond, Va.; Chicago Homeopathic Medical College, 1889; Medical College of Virginia, Richmond, 1906; aged 55; died in the Tucker Sanatorium, Richmond, July 15, from cerebral hemorrhage.

Thomas G. Boorman, M.D., Celina, Texas; Memphis Hospital Medical College, Memphis, Tenn., 1900; aged 53; a member of the Texas State Medical Association; died at a sanatorium in Terrell, Texas, September 12.

Lieut. Benjamin W. J. Worrall, U. S. Navy, Kansas City, Mo.; University of Kansas, Lawrence and Rosedale, 1906; aged 38; was instantly killed in an automobile accident at North Tonawanda, N. Y., September 15.

J. H. Williford, M.D., Dawson, Ga.; Cincinnati College of Medicine and Surgery, 1874; aged 65; formerly a member of the Medical Association of Georgia; died suddenly from heart disease at his home, September 11.

William Francis Brady, M.D., Scranton, Pa.; Jefferson Medical College, 1884; aged 53; formerly a member of the Medical Society of the State of Pennsylvania; died at his home, September 18, from angina pectoris.

Frederick Whittlesey Peck, M.D., New Britain, Conn.; Cleveland University of Medicine and Surgery, 1897; aged 50; died in the New Britain General Hospital, September 10, after an operation on the intestines.

Samuel G. Wishard, M.D., Watonga, Okla.; Western Reserve University, Cleveland, 1874; aged 74; formerly a member of the Oklahoma State Medical Association; a veteran of the Civil War; died early in August.

I. O. Kemberling, M.D., Colon, Mich.; Homeopathic Hospital College, Cleveland, 1873; aged 76; a veteran of the Civil War; for twenty-eight years a practitioner of Detroit; died at his home, about September 14.

Myron Dwight Gray, M.D., Cambridge Springs, Pa.; University of Pennsylvania, Philadelphia, 1874; aged 65; formerly a member of the Medical Society of the State of Pennsylvania; died recently at his home.

Benjamin Maltby Page, M.D., Pasadena and Redondo Beach, Calif.; College of Physicians and Surgeons in the City of New York, 1[illegible]4; aged 74; died in his summer home, at Redondo Beach, September 16.

William Izard Bull, M.D., Charleston, S. C.; Medical College of the State of South Carolina, Charleston, 1860; aged 79; a surgeon in the Confederate Army during the Civil War; died at his home, July 29.

Pramath Nath Roy, M.D., Boston; University of Glasgow, Glasgow, Scotland, 1885; aged 58; for many years surgeon of the Allan Steamship Line; died at his home, September 5, from heart disease.

Augustine B. Libby, M.D., Smyrna Mills, Me.; Baltimore University School of Medicine, Baltimore, 1894; aged 60; a member of the Maine Medical Association; died at his home, about September 7.

Joseph Charles Myers, M.D., Clinton, Ill.; Miami Medical College, Cincinnati, 1880; aged 59; a Fellow of the American Medical Association; died at his home, September 19, from heart disease.

John J. Weitzman, M.D., Detroit; Michigan College of Medicine and Surgery, Detroit, 1901; aged 38; died in Harper Hospital, September 16, after an operation for appendicitis.

Albert L. Bingham, M.D., Williston, Vt.; University of Vermont, Burlington, 1875; aged 64; a member of the Vermont State Medical Society; died at his home, August 7, from diabetes.

Abner Toothaker Wells, M.D., Kendallville, Ind.; Baltimore University, 1899; aged 42; a member of the Massachusetts Medical Society; died, August 17, in Little Rock, Ark.

Frederick Bernard Baurichter, M.D., Cincinnati; Cincinnati College of Medicine and Surgery, Cincinnati, 1898; aged 41; died in Christ Hospital, September 3, following an operation.

Charles Oliver Sahler, M.D., Kingston, N. Y.; College of Physicians and Surgeons in the City of New York, 1878; aged 63; died in his sanatorium in Kingston, September 17.

Michael O'Farrell, M.D., Shawnee, Ohio; Bellevue Hospital Medical College, 1876; aged 66; for forty-one years a practitioner of Shawnee; died at his home, September 14.

Carlos de Campos, Jr., M.D., Paulista, Brazil; Hahnemann Medical College, Philadelphia, 1917; aged 21; died, September 11, in the Hahnemann Hospital, from pneumonia.

George W. Ling, M.D., Dutton, Ont.; University of Michigan, Ann Arbor, 1864; University of Victoria College, Coburg, Ont., 1866; died at his home, about September 18.

Thomas Henry Hannan, M.D., Hoosick Falls, N. Y., Bellevue Hospital Medical College, New York, 1891; aged 50; died at his home, July 27, from insolation.

Charles E. Triplet, M.D., Morocco, Ind.; Kentucky School of Medicine, Louisville, 1856; aged 82; a veteran of the Civil War; died at his home, August 28.

Benjamin Sturgis Van Zile, M.D., New York; Bellevue Hospital Medical College, 1875; aged 72; died at his home, September 3, from senile debility.

James Lang, M.D., Pasadena, Calif.; Bellevue Hospital Medical College, New York, 1879; aged 86; died at his home, September 7, from senile debility.

Benjamin Franklin Stark, M.D., Lyerly, Ga.; Chattanooga Medical College, Chattanooga, Tenn., 1909; aged 31; died at his home, June 30, from enteritis.

Abner Osborn Van Horn, M.D., Middle Island, N. Y.; Bellevue Hospital Medical College, New York, 1873; aged 72; died at his home, September 5.

Horace Lee Metts, M.D., Willie, Ga.; Atlanta School of Medicine, Atlanta, Ga., 1912; aged 35; committed suicide at Hinesville, Ga., September 4.

William Minns Caldwell, M.D., New Castle Bridge, N. B.; Harvard University, Boston, 1867; aged 72; died, July 3, at St. John, N. B.

Thomas Edwin Kelly, M.D., Brooklyn; Long Island College Hospital, Brooklyn, 1900; aged 39; died at his home, September 13.

William P. Bouton, M.D., Lebanon, Tenn.; University of Louisville, Louisville, Ky., 1870; aged 69; died at his home, September 3.

Harry Albert Salmon, M.D., New York; Bellevue Hospital Medical College, New York, 1888; aged 59; died at his home, September 10.

Joseph Evans, Jenelew, W. Va. (license, West Virginia, years of practice, 1881); aged 82; died, about September 1.

J. F. Snyder, Hazleton, N. D. (license, North Dakota, 1899); aged 53; died at his home, August 31, from heart disease.

Thomas C. Brady, Marshalltown, Iowa (license, Iowa, 1887); aged 45; died at his home, September 1.

The Propaganda for Reform

IN THIS DEPARTMENT APPEAR REPORTS OF THE COUNCIL ON PHARMACY AND CHEMISTRY AND OF THE ASSOCIATION LABORATORY, TOGETHER WITH OTHER MATTER TENDING TO AID INTELLIGENT PRESCRIBING AND TO OPPOSE MEDICAL FRAUD ON THE PUBLIC AND ON THE PROFESSION

ZIRATOL

Report of the Council on Pharmacy and Chemistry

Ziratol (Bristol-Myers Company, New York), in compliance with the federal "insecticide law," is declared to contain 32 per cent. water and 30 per cent. glycerin as inert constituents. Regarding its active constituents the manufacturer makes the following and meaningless statement:

"Ziratol is prepared from Phenols of the Naphthalene series and consists of a solution of such Phenols in a mixture of soap, water and glycerin."

In response to inquiry, the A. M. A. Chemical Laboratory examined Ziratol and reported that its essential constituent appears to be alpha-napthol,[1] and that it has, essentially, the following composition by weight: Alpha-napthol 18 per cent., soap 20 per cent., glycerin and water sufficient to make 100 per cent.

A Ziratol advertising circular gives a tabulated report of germicidal tests, said to have been made according to the method of the Hygienic Laboratory of the U. S. Public Health Service. When this work was done is not stated. According to these tests Ziratol possesses a phenol-coefficient of 13.66. The claim that Ziratol is ten times more efficient than carbolic acid (phenol) is evidently based on this report.

These claims of high germicidal value are contradicted by an examination made for the Council. A specimen purchased in the open market was examined independently by two operators, to determine the Hygienic Laboratory phenol-coefficient. One observer found the phenol coefficient to be 2.54. The other reported it to be 3.09. Evidently the germicidal value of Ziratol is greatly exaggerated in the advertising claims and, in fact, does not exceed that of the official compound solution of cresol (Liquor Cresolis Compositus, U. S. P.) for which a phenol-coefficient of about three has been established. (See New and Nonofficial Remedies, 1917, p. 82.) The claim that Ziratol is "the Universal Antiseptic and Germicide" is manifestly an unwarranted exaggeration.

The referee in submitting this report to the Council recommended that Ziratol be held in conflict with Rule 1 (secrecy of composition) and Rule 6 (unwarranted and exaggerated claims). After the report had been submitted, it was found that a new advertising circular, accompanying a trade package, no longer contained the claim that "Ziratol is ten times more efficient than Carbolic Acid." The older circular made the following statement:

> "1. Strong Activity.—Compared with the bactericidal action of Carbolic Acid by the method of the Hygienic Laboratory of the Marine Hospital Service, ZIRATOL has the Carbolic Acid Coefficient of more than TEN, that is, ZIRATOL is TEN times more efficient than Carbolic Acid,—a strength unapproached by any other of its class. ZIRATOL in dilution of 1:1400 kills the Typhoid Bacillus in 2½ minutes, thus proving that it is strongly active even in very weak solutions."

The new advertising circular reads:

> "1. Strong Activity—Extensive bacteriological investigations on many pathogenic organisms, conducted in the Lederle Laboratories of New York, prove conclusively the high bactericidal value of Ziratol in extremely dilute solutions. (A copy of the complete report will be mailed upon request.)"

In response to a request, the Bristol-Myers Company sent a copy of the bacteriologic investigations of Ziratol, said to have been made by the Lederle Laboratories. The organisms employed for these tests were *Staphylococcus aureus*, *Staphylococcus albus*, *Streptococcus*, Green pus bacillus, *B. coli*, and saliva. No tests are given with the typhoid bacillus. The conclusion is reached that "*in all the tests the solutions of* Ziratol have several times greater killing efficiency than those of phenol." The "coefficients" or comparative values which can be calculated from the results after exposure of 15 minutes to the disinfectants range from 2.0 to 4.0. This is in substantial accord with the referee's findings as regards the phenol-coefficient with *B. typhosus* as the test object. While the new advertising circular avoids the former claim that Ziratol is ten times more efficient than carbolic acid, in germicidal value, it still makes the unwarranted claims that Ziratol is the "universal disinfectant."

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[1] Alpha-napthol was also found to be the basis of the nostrum Benetol. See THE JOURNAL, April 15, 1911, p. 1128.

The Council declared Ziratol inadmissible to New and Nonofficial Remedies (1) because its composition is secret (Rule 1); (2) because the phenol coefficient, determined according to the method of the Hygienic Laboratory, U. S. P. H. S., is not stated on the label (Rule 2); (3) because the label and the circular accompanying the trade package [illegible]vises its use by the public as a "vaginal douche" (Rule 3); [illegible] (4) because the claim that Ziratol is the "universal dis[illegible]ectant" is exaggerated and unwarranted (Rule 6).

Before authorizing publication of the preceding report the Council submitted it to the Bristol-Myers Company in order to give that company the opportunity of revising its method of marketing Ziratol. In reply the company enlarged on its withdrawal (on "our own initiative") of the claim that Ziratol had a phenol-coefficient of over ten when this claim was shown to be incorrect "by authoritative sources." One wonders whether this is a euphemistic reference to the proceedings of the federal authorities under the Insecticide Act against the Bristol-Myers Company, just made public,[1] because of the false claims made for the germicidal efficiency of Ziratol. This prosecution resulted in the seizure and condemnation of two lots of this proprietary which had passed in interstate commerce.

The Bristol-Myers Company in replying to the Council's report made no offer to declare the exact composition of Ziratol, to state the actual phenol-coefficient, or to remove the other objections pointed out in the report of the Counci' In other words, the Bristol-Myers Company has abandoned a definite, but false claim of high germicidal power—a claim which subjected the firm to federal prosecution—and has substituted therefor indefinite statements which do not define the actual germicidal efficiency of Ziratol.

SOME MISBRANDED NOSTRUMS*

DeWitt's Eclectic Cure.—W. J. Parker & Co., Baltimore, Md., was the proprietor of "Dr. De Witt's Eclectic Cure," which contained alcohol, opium and ether. It was sold under the claim that it was an internal and external remedy for cholera, dyspepsia, diphtheria, croup, scarlet fever and other conditions. These claims were declared false and fraudulent. It was declared further misbranded in that while the label declared the presence of 75 per cent. alcohol and 1 grain of opium to the fluid ounce, the stuff actually contained 60 per cent. alcohol and 1.3 grains of opium to the ounce. W. J. Parker & Co. admitted the allegations of the libel. The court ordered that if the company would pay the cost of the proceedings and give a bond not to sell the stuff under claims that would bring it into conflict with the Food and Drugs Act, the 288 bottles of "DeWitt's Eclectic Cure" that had been seized might be delivered to it.—[*Notice of Judgment No. 4470.*]

DeWitt's Liver, Blood and Kidney Cure.—William J. Parker, who traded under the name the W. J. Parker Co., Baltimore, Md., sold "Dr. DeWitt's Liver, Blood and Kidney Cure" under the claim that it would cure diabetes, Bright's disease, malaria and diseases of the liver, blood and kidneys. Government chemists reported that the preparation, which contained over 11 per cent. alcohol, was essentially an alcohol-water solution bearing a cathartic drug together with Epsom salt, nitrates and iodids. The taste suggested senna. The claims made by Parker were declared recklessly and wantonly false and fraudulent. He pleaded guilty and was fined $15.—[*Notice of Judgment No. 4440.*]

Lightning Hot Drops.—This nostrum was sold by the Herb Medicine Co., Springfield, Ohio, and admittedly contained 60 per cent. alcohol and 48 drops of chloroform to the ounce. The federal chemists reported also the presence of ether and cayenne pepper. It was sold as a cure for diphtheria, bloody flux, inflammatory rheumatism, *la grippe* and all aches and pains. These claims were declared false and fraudulent and applied knowingly. The company pleaded guilty and was fined $50 and costs.—[*Notice of Judgment No. 4414.*]

Mother's Salve Mother's Remedy.—The Mother's Remedies Co. of Chicago, Ill., manufactured this preparation, which, according to the government chemists, was a green-colored salve consisting of petrolatum (vaseline) with some glycerin, potassium chlorate and oils of cloves, cinnamon, eucalyptus, sassafras and pine or juniper, together with a gum, like gum acacia, and a small amount of fatty oil. The label declared that the product was "Prepared from vegetable oils," a false and misleading statement, as, actually, it was prepared from animal, mineral and vegetable oils. It was further sold under the claim that it was a preventive of diphtheria and pneumonia, a "cure" for croup and catarrh and a remedy for eczema, piles and salt rheum. These claims were declared recklessly and wantonly false and fraudulent. The company pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 4427.*]

Raney's Blood Remedy.—This preparation was manufactured by Leila J. Raney of Atlanta, Ga., who did business under the name of Raney Medicine Co. The government chemists reported that analysis showed the product to be a solution of potassium iodid ("potash") and corrosive sublimate in syrup of sarsaparilla with 16 per cent. alcohol. It was sold under the claim that it was a "cure" for cancer, pellagra, catarrh, female complaints and rheumatism and as a remedy for carbuncles, eczema, diseases of the kidneys, all blood and nerve diseases and was, in addition, a nerve tonic and a nerve rebuilder. These claims were declared false and fraudulent and applied knowingly, recklessly and wantonly. Leila J. Raney pleaded guilty and was fined $50.—[*Notice of Judgment No. 4436.*]

Rattlesnake Oil Liniment.—The federal authorities seized 51 bottles of "White Eagle Indian Rattlesnake Oil Liniment" charging that the product was misbranded under the Food and Drugs Act. The name was declared misleading in that it purported to state that the product contained rattlesnake oil, whereas, in fact it contained no appreciable amount, if any, of such oil. The claims on the trade package that the stuff was a positive cure for rheumatism, catarrh, diphtheria, eczema and various other conditions were declared false and fraudulent. No claimant having appeared, the court entered judgment of condemnation and forfeiture and ordered that the United States marshal should destroy the product.—[*Notice of Judgment No. 4442.*]

Rosadalis.—Hall & Ruckel, New York City, sold this preparation which, according to government chemists, was essentially a water-alcohol solution containing over 32 per cent. alcohol and 2.8 grams per 100 c.c. of potassium iodid and a cathartic drug. It was sold under the claims that it would cure all malarial impurities of the blood, consumption in its early stages, rheumatism, "female diseases," chronic diseases of the blood, liver, kidneys and bladder. These claims were declared false and fraudulent and made recklessly and knowingly. The company pleaded guilty and was fined $25.—[*Notice of Judgment No. 4505.*]

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[1] U. S. Dept. of Agric., Insecticide and Fungicide Board, Service and Regulatory Announcements, No. 16, issued Aug. 8, 1917. *No. 244,* Misbranding of "Ziratol." U. S. *v.* 100 bottles, *more or less,* of "Ziratol"; consent decree of condemnation and forfeiture; product ordered released on bond, p. 248. *No. 256,* Misbranding of "Ziratol." U. S. *v. 936* bottles and 6 jugs of Ziratol, consent decree of condemnation and forfeiture; product ordered released on bond, p. 260.

* This material, with much additional, appears in the new edition of the pamphlet "Convictions," price fifteen cents.

Correspondence

DRAFTING THE MEDICAL PROFESSION

To the Editor:—An editorial appeared in THE JOURNAL, Aug. 11, 1917, p. 474, concerning the selective draft of physicians. The New York State Committee of National Defense, Medical Section, after a most careful and exhaustive study, came to the conclusion that a classification of physicians in the United States should be made with selection of those whose age, physical condition, freedom from family obligation, etc., would make them available and desirable for Army service, such classification to exclude all those whose services were necessary in rural districts, hospitals, health departments and medical colleges, and that authority should be secured to furnish the former to the Army and to keep the latter at home.

The first step in this plan was to send a petition to the Council of National Defense explaining the need and advantages of a selective draft. This petition was printed in THE JOURNAL, August 25, and is now being circulated among the physicians in New York state.

Your editorial comment made this proposal appear as an effort to discredit the patriotism of the medical profession. No such thought actuated the framers of the petition. The idea was first formally proposed by the Medical Section of the North Carolina State Committee and has been approved by many prominent members of our profession.

The following statement regarding the selective draft of physicians was prepared by the secretary, Dr. F. T. Van Beuren, Jr., and gives a very clear explanation of the aims and purport of this plan.

1. The principle of Universal Service requires that every individual should serve the Nation in time of need, in that situation which best befits his age, his experience, his talents and education and his economic status.

2. It is founded on the obligation universally owed by every individual to the Nation whose protection and opportunities he has enjoyed.

3. The New York State Committee of National Defense, Medical Section, believes in and affirms this obligation and the principle of Universal Service founded upon it.

4. In war time the medical profession is faced by the duty of
   (*a*) Furnishing to the Army an adequate number of physicians fit to become medical officers.
   (*b*) Furnishing adequate medical care to civil communities at home.

5. It is obvious that, in an emergency like the present, when a large percentage of the physicians of this country are needed as medical officers for our own Army and to aid the armies of our Allies (whose available supply of new medical personnel is practically exhausted—see "London Letter" in JOURNAL A. M. A., September 8th, 1917), an orderly and efficient plan of procedure is desirable and will sooner or later become necessary. It is obvious, also, that not all physicians are fit to become medical officers.

6. To be effective then, in fulfilling the duties stated in paragraph 1, such a plan must include two essentials:
   (*a*) An adequate classification upon which to base the selection of those who are fittest for the Army and those who are most needed at home.
   (*b*) Authority to furnish the former individuals to the Army and to retain the latter at home.

7. The most efficient plan so far offered for accomplishing these essentials is the one recommended by the New York State Committee of National Defense, Medical Sections, in its Petition for Selective Draft of Physicians. It provides for:
   (*a*) A Federal classification of physicians by a special Federal Medical Census similar to the recent special Medical Census of New York State.
   (*b*) Authorizing the President to call into service and commission as medical officers an adequate number of physicians between the ages of 21 and 45 years fit for army service.

8. The selection of these individuals would be made by lot from all those determined by the classification to be available and desirable for army medical service. The selection would be in the hands of the medical profession and the quota to be furnished by each County in the United States would be based upon the number of such available physicians in that County.

The necessary authority would be delegated, in the form of Regulations, to the Surgeon General of the Army and to the County Auxiliary Medical Committee for National Defense. The Judge Advocate General has stated that the legal requirement of such a plan would be constitutional.

It is confidently hoped that when this proposal is thoroughly understood it will receive the cordial support of every red blooded physician who desires to render the most effective, intelligent and patriotic service to his country in this great emergency.

HENRY L. K. SHAW.
Major, M. R. C., U. S. Army, Madison Barracks, N. Y.

PRIORITY IN APPLICATION OF HEAT IN CORNEAL ULCER

To the Editor:—I take great pleasure in correcting an error which was made by myself in discussing the papers of Drs. Verhoeff and Shahan at the recent meeting of the Section on Ophthalmology of the American Medical Association in New York.

I participated in this discussion on the spur of the moment, after listening, with careful attention, to the various ophthalmic surgeons. It was a surprise that the authors of these papers did not mention the father of this treatment, one of San Francisco's pioneers in ophthalmology. When I began my remarks on the subject I could not recall the name of Dr. Martinache, and appealed to the audience. Dr. Park Lewis of Buffalo mentioned the name of Dr. Barkan, whom I accepted for the moment, thinking that on my return home I would look up the reference and give credit to the proper person, Dr. Martinache. Since reading Dr. Nagel's letter to THE JOURNAL, Sept. 15, 1917, p. 933, I have looked up the data on the subject and can confirm Dr. Nagel's statement, giving credit to Dr. Martinache, whom I had in mind all the time, but whose name I could not recall at the time. "Honor to whom honor is due."

L. WEBSTER FOX, M.D., Philadelphia.

A SELECTIVE DRAFT OF PHYSICIANS BASED ON CLASSIFICATION

To the Editor:—After reading the communication of Major Derby on this subject (THE JOURNAL, Sept. 22, 1917, p. 1023), I cannot refrain from writing a few words.

Major Derby is most inconsistent in saying the Army wants the best men of the profession and the younger men. We all know that the youngest men are not the best men of the medical profession. They have not had time to become the best men. And it certainly is cruel and unjust to speak of men who have given up everything—homes, families, profession and incomes ranging from five to twenty times what the government is paying them—as failures and an inferior lot. Certainly, judging from the men who have gone from this part of the country, Major Derby is a very poor judge of the profession and of men.

MRS. C. J. COMBS, Oshkosh, Wis.

To the Editor:—In THE JOURNAL, Sept. 22, 1917, I see a criticism of the Medical Reserve Corps from Richard Derby, Major, M. R. C. At Fort Riley, Kan., we have specialists in all lines of the medical profession, a very few men having just finished an internship at some hospital, and a few men just out of college a year or two. But 90 per cent. of the men here are good men, who have been taking care of the sick and wounded from five to twenty-five years, have been successful both professionally and financially, and have sacrificed home comforts and incomes of from $2,000 to $20,000 a year. If these men can take care of the sick and wounded men at home I do not see why they are not capable of taking care of sick and wounded men in the Army.

Most of the good men under 30 that Major Derby speaks of are the ones that have made a *financial failure* of their profession. They are staying at home trying to get a practice by the other man's sacrifice. If Major Derby has a fair proportion of the men described in his company, I am glad that I do not belong to his company.

D. E. KISECKER, First Lieutenant, M. R. C.,
Fort Riley, Kan.

Responsibility.—Responsible behavior depends more on sound morals than anything else, and sound morals are sound habits due to sound parentage and a wholesome environment. —George Frederick Arps, *Scientific Monthly.*

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

APPARATUS FOR SPRAYING PARAFFIN

To the Editor:—Can you tell me where I can get apparatus for spraying paraffin on burns?

J. Mortimer Crowe, M.D., Watertown, N. Y.

Answer.—The Caldwell Sprayer (described in The Journal, Aug. 4, 1917, p. 383) and the Pierce Paraffin Sprayer are marketed by the Max Wocher and Son Company, Cincinnati. The Abbott Laboratories of Chicago list an atomizer for melted wax. Also the DeVilbiss Manufacturing Company, Cleveland, makes an instrument for this purpose.

MEDICAL ITALIAN-ENGLISH BOOKS

To the Editor:—Can you inform me whether there are any special textbooks I could obtain or the purpose of acquiring a speaking vocabulary of medical Italian, such as would be of service to a physician practicing among Italian people?

Philip Katzen, M.D., Brooklyn.

Answer.—

Thimm, F. J. L.: Italian Self-Taught, Dick & Fitzgerald, 18 Ann Street, New York, 25 cents.

Physicians' Interpreter: in English, French and Italian, F. A. Davis Company, 1914 Cherry Street, Philadelphia, $1.

Bimanski, F.: Italian for Use in the Clinic, 1076 West Twelfth Street, Chicago, 5 cents.

Waller, E.: English-Italian Phrase Book, Morristown, N. J., 75 cents; *supplement*, 25 cents.

Book Notices

The Sex Worship and Symbolism of Primitive Races: An Interpretation. By Sanger Brown, Jr., M.D., Assistant Physician, Bloomingdale Hospital. With an Introduction by James H. Leuba. Cloth. Price, $3 net. Pp. 145. Boston: Richard G. Badger, 1916.

This book, the greater part of whose first three chapters appeared in the *Journal of Abnormal Psychology*, was written with the object of giving the life history of a primitive motive in the development of the race, and to emphasize the dynamic significance of the motive. In the first chapter, on "Simple Sex Worship," the author shows that a simple form of sex
worship has been quite generally found among the
races of mankind. "In the frank and open form of
ship, it is quite clear that we are dealing with a ver
type of mind." In the next chapter, on "Symbolis
author says, "As civilization advanced the deification
was no longer frank and open. It came to be carried
means of symbolism." He gives an account of var
symbols to illustrate the wide prevalence of sex wors
among primitive races, and to give a certain insight into t
type of mind which evolves symbolism. In the third chapte
on "Sun Myths, Mysteries, and Deca Sex Worship," the
author discusses the decadence or of this worship,
which occurred after peopl wn these simple
religious conceptions. der, on "Interpreta-
tions," the author anal ur the worship of sex.
He draws a paralleli —[*Notic* worship, actuated by
the desire of primiti tritive demands, and
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Blood and Kidney Cures between the indi-
traded under the name the W. Jrring to day dream-
more, Md., sold "Dr. DeWitt's Liver, Blo and "a tendency to
Cure" under the claim that it would cure dialf infancy and child-
n adult life," in the

1. U. S. Dept. of Agric., Insecticide and Fungicide
and Regulatory Announcements, No. 16, issued Aug. 8, in presenting in an
Misbranding of "Ziratol." U. S. *v.* 100 bottles, m forf planations which,
"Ziratol"; consent decree of condemnation and been objectionable
ordered released on bond, p. 248. *No. 256*, Misbrandin
U. S. *v.* 936 bottles and 6 jugs of Ziratol, consent decree neral reader and
tion and forfeiture; product ordered released on bond, p.
* This material, with much additional, appears in the author's trend
of the pamphlet "Convictions," price fifteen cents.

of mind relative to the pathogenesis of certain morbid mental states, it does so in not quite the shape James H. Leuba wishes us to believe in his introduction, namely: "His theory is that we may expect diseased minds to reproduce, or return to expressions of desire customary and official in societies of lower culture."

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 13-14. Sec., Dr. T. J. Stout, Brinkley.

Arkansas: Eclectic: Little Rock, Nov. 13. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

California: Los Angeles, Oct. 9-13. Secretary, Dr. Charles B. Pinkham, State Capitol, Sacramento.

Connecticut: New Haven, Nov. 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

Connecticut: Homeopathic: New Haven, Nov. 13. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Eclectic: New Haven, Nov. 13. Pres., Dr. J. W. Fyfe, Saugatuck.

District of Columbia: Washington, Oct. 9-11. Sec., Dr. Edgar P. Copeland, The Rockingham, Washington, D. C.

Georgia: Atlanta, Oct. 9-11. Sec., Dr. C. T. Nolan, Marietta, Ga.

Illinois: Chicago, Oct. 9-11. Superintendent of Registration,
Dodds, Springfield.

Iowa: Des Moines, Oct. 9-11. Sec., Dr. G. H. Sumner, Sta
Des Moines.

Maine: Portland, Nov. 13-14. Sec., Dr. Frank W. Searl
gress St., Portland.

Michigan: Lansing, Oct. 9-11. Sec., Dr. B. D. Harison
ington Arcade, Detroit.

National Board of Medical Examiners: Chicago, Oct
Dr. J. S. Rodman, 2106 Walnut St., Philadelphia.

Nevada: Carson City, Nov. 5. Sec., Dr. S. L. Lee, C

New Jersey: Trenton, Oct. 16-17. Sec., Dr. Alexan
438 E. State St., Trenton.

New Mexico: Santa Fe, Oct. 8. Sec., Dr. R. K.
Las Vegas.

Oklahoma: Oklahoma City, Oct. 9-10. Sec., Dr.
502 Daniel Bldg., Tulsa.

South Carolina: Columbia, Nov. 13. Sec., D
1806 Hampton St., Columbia.

Texas: Dallas, Nov. 20-22. Sec., Dr. M. F.

West Virginia: Clarksburg, Nov. 21-23. Chair
Capitol Bldg., Charleston.

Wyoming: Laramie, Oct. 10-12. Sec., Dr. H.

Drugless Healers in I

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Medicolegal

Liability of Employers for Services Rendered to Injured Employee

(Perkins vs. Kilpatrick et al. (Mo.), 193 S. W. R. 876)

The Kansas City (Mo.) Court of Appeals, in affirming a judgment in favor of the plaintiff for services rendered to an injured employee of the defendants, contractors in a quarry for furnishing rock to a railway company, says that the defendants relied much on the difference in a request for service from a physician and a request for other character of employment. If one is found in distress or serious sickness or injury, so that he is unable to care for himself, and is seen to be without professional help, it is the instinct of humanity for one observing such dire situation to call a physician; and it is not thought or expected, either by the physician or the one calling him, that a liability for services is incurred. But this case was more than that. When this employee was injured he was placed in a shanty nearby, and the defendants' regularly employed physician was put in charge of him. He remained there for two days, when the defendants' manager or superintendent sent him to a hospital where the plaintiff was a surgeon and had charge of patients, besides which he was division surgeon for the railway company and first knew of the injured man through its superintendent. The plaintiff began attendance on the man the day of his arrival at the hospital, and kept up his service for nearly two years; the defendants' physician having no part therein. During all this time the defendants knew of the serious injury the man had received. They knew of his removal to the hospital, and, of course, of their obligation to him. The court thinks this was a strong circumstance against their denial of liability, properly weighed by the jury. When the railway company learned that the man was not its employee, its superintendent caused its manager at the quarry to seek information concerning the defendants' liability for the plaintiff's services. The manager subsequently received a letter from "Kilpatrick Bros., by W. C. Rich," saying: "Replying to yours of the 16th inst. You may bill on us to cover the expense of the hospital treatment in connection with the case of Benjamin Funk, the man who was injured," etc. There were but two ways to avoid this letter; one to deny Rich's authority, and the other to insist that it could not affect the plaintiff's claim except for the services after its date. Rich was shown to be the defendants' timekeeper, but it was also shown that he signed checks, attended to correspondence, and signed letters for the defendants. There was abundant room for the jury to find authority. The letter, connected with the other evidence, was ample to show a liability for the plaintiff's services, not merely from the date of the letter, but the whole service. The court agrees with the defendants that the mere fact that they collected a fund out of the wages of employees would not necessarily make them liable to the plaintiff or any other particular persons for services. But it was a proper circumstance to be considered by the jury. The question in the case was essentially one of fact, and the court thinks it was shown by abundant evidence, the circumstances considered, that the defendants knew of their obligation to the plaintiff, and through their accredited agent promised to pay him.

Without Power to Compel Vaccination

(Waldschmidt et al. vs. City of New Braunfels et al. (Tex.), 193 S. W. R. 1077)

The Court of Civil Appeals of Texas reverses a judgment obtained by the defendants, and in its stead renders one that they be enjoined from excluding from the public schools of New Braunfels the children of plaintiff Waldschmidt because they had not complied with a city ordinance requiring a certificate of vaccination for admittance to schools, said plaintiff and children being Christian Scientists. That the state, through its legislature, may, in the exercise of its police power, enact all reasonable legislation for the promotion of the public welfare, including the preservation of health, the court says is too well settled to require citation of authorities. Also that the reasonableness of such measures is primarily a question for the legislature, and will be reviewed by the courts only in clear cases of abuse of such power, is equally well settled. In reference to this rule, as applied to vaccination, courts have frequently said that they were not called on to decide whether or not vaccination was a preventive of smallpox, but only whether the legislature which enacted such legislation had reason to so believe. But the rule is quite different where local authorities have undertaken to pass rules or ordinances with reference to vaccination, without being expressly authorized so to do. Municipal corporations are the creatures of statute, and have no powers except those expressly or impliedly granted by the statute creating them.

The legislature of Texas has never enacted a law to exclude any one from school who has not been vaccinated, nor has it expressly authorized any city council, board of school trustees, or even the state board of health, composed as it is of eminent physicians, to do so. The power to pass the ordinance above referred to is not to be implied from article 838 of the revised statutes, which reads: "To do all acts and make all regulations which may be necessary or expedient for the promotion of health or the suppression of disease." That means only that city councils may "do all acts and make all regulations which may be necessary or expedient" to carry into effect the powers expressly granted them "for the promotion of health or the suppression of disease." Anything that they might do in attempting to carry into execution the powers expressly granted would be sustained by the courts, unless it was clearly shown to be unreasonable. Moreover, the court thinks that the compulsory education law, with its penalty of fines, furnishes another reason, and a cogent one, why it should not be held in Texas that city councils have implied authority to exclude from public schools all who have not been vaccinated. A number of exemptions and excuses are provided for in the act, among which is quarantine, but failure to have been vaccinated is not one of them.

That the state may disregard religious opinions when necessary so to do to protect morals is the effect of the decisions in reference to polygamy as taught by the Mormon church. Whether or not this would apply to compulsory vaccination, the court is not called on to decide. The state has not attempted, either directly or indirectly, to compel any one to be vaccinated, nor has it authorized any municipal corporation to do so.

If, however, it be conceded that the city had implied authority to pass and enforce the ordinance at the time of its passage, such authority arose from the prevalence of smallpox in the city in epidemic form, or its threatened invasion at that time. Courts so holding limit such authority to the continuance of the emergency. So the question was: What was the condition in regard to smallpox in the city when this case was tried? The undisputed testimony showed there was then but one case of smallpox in the city, and it was isolated and practically convalescent. That a portion of the population was Mexican, and that smallpox was of frequent occurrence in San Antonio, 28 miles distant, would not justify the enforcement of the ordinance. A rehearing was denied.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Oto-Laryng., Pittsburgh, Oct. 29-30.
Am. Assn. for Study and Prev. of Inf. Mort., Richmond, Va., Oct. 15-17.
American Association of Railway Surgeons, Chicago, Oct. 17-19.
Clinical Congress of Surgeons, Chicago, Oct. 22-26.
Delaware State Medical Society, Middletown, Oct. 8-9.
Kentucky State Medical Association, Louisville, Oct. 16-18.
Medical Association of the Southwest, Kansas City, Oct. 15-17.
Minnesota State Medical Association, St. Paul, Oct. 10-12.
Mississippi Valley Medical Association, Toledo, O., Oct. 9-11.
Nevada State Medical Association, Reno, Oct. 18-19.
New Mexico Medical Society, Las Cruces, Oct. 4-6.
Southern Medical Association, Memphis, November 12-15.
Vermont State Medical Society, Barre, Oct. 11-12.
Virginia State Medical Society, Roanoke, Oct. 23-26.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

Annals of Ophthalmology, St. Louis

July, XXVI, No. 3

1 Comfort Test as Method of Refraction. P. Potter, Butte, Mont.—p. 391.
2 Cataract Operations. J. J. Smith, San Francisco.—p. 404.
3 Use of Sophol in Prevention of Ophthalmia Neonatorum. I. F. Stein, Chicago.—p. 411.
4 Operation for Anterior Synechia; Report of Cases of Secondary Glaucoma and Staphyloma in Which It Was Used. C. G. Darling, Chicago.—p. 416.
5 Choroiditis of Therapeutically Proved Dental Origin. H. S. Gradle, Chicago.—p. 419.
6 Glaucoma and Autointoxication. C. W. Hawley, Chicago.—p. 421.
7 Do Moving Pictures Injure the Eyes? C. A. Bahn, New Orleans.—p. 427.
8 Intraventricular Injection of Antisyphilitics in Primary Optic Atrophy; Report of Case. M. Goldenburg, Chicago.—p. 433.

Annals of Otology, Rhinology and Laryngology, St. Louis

June, XXVI, No. 2

9 Surgical Consideration of Upper Paranasal Cells. G. Sluder, St. Louis.—p. 353.
10 Asthma Associated with Ethmoidal Disease. J. M. Brown, Los Angeles.—p. 397.
11 Report of Three Cases of Brain Abscess of Otitic Origin. G. M. Coates, Philadelphia.—p. 408.
12 Severe Epistaxis in Woman with Diabetes, Myomas of Uterus and Acute Mastoiditis. W. Freudenthal, New York.—p. 416.
13 Septal Hemorrhage; Its Cure by Submucous Elevation. J. Leshure, New York.—p. 420.
14 Some Interesting Labyrinth and Eighth Nerve Cases. H. B. Graham, San Francisco.—p. 426.
15 Acute Suppurating Mastoiditis without Tympanitis, Perisinus Abscess, Phlebitis, Streptococcemia, Operation, Recovery. C. H. Long, Chicago.—p. 432.
16 Practical Uses of Recent Work on Internal Ear, to General Practitioner, Otologist, Ophthalmologist, Syphilologist, Neurologist and Surgeon. I. H. Jones, Philadelphia.—p. 436.
17 Observations on After-Turning Nystagmus. G. W. Mackenzie, Philadelphia.—p. 445.
18 Vertigo; Its Causes and Methods of Diagnosis. L. Fisher, Philadelphia.—p. 511.
19 Use of Electric Cautery in Nose. W. A. Hitschler, Philadelphia.—p. 519.
20 Facial Paralysis as Complication of Acute Otitis Media. E. B. Jones, Washington, D. C.—p. 523.
21 Primary Jugular Thrombosis Due to Tonsil Infection. C. Goodman, New York.—p. 527.
22 Transillumination of Larynx and Upper Trachea. F. R. Spencer, Boulder, Colo.—p. 530.
23 Relations of Sphenoid Sinus to Semilunar (Gasserian) Ganglion and Their Possible Clinical Importance. G. Sluder, St. Louis.—p. 537.
24 Is Modified Radical, or Health Operation, Justifiable Procedure? A. S. Kaufman, Philadelphia.—p. 543.
25 Case of Acute Mastoiditis with Enormous Leukocyte Count; Both Mastoids Opened; Recovery. G. F. Keiper, La Fayette, Ind.—p. 548.
26 Obscure Case of Sigmoidal Sinus Thrombosis. T. H. Odeneal, Beverly, Mass.—p. 552.
27 Complicated Gradenigo's Syndrome; Operation; Recovery. A. Dighton, Liverpool.—p. 554.

Archives of Internal Medicine, Chicago

September, XX, No. 3

28 *Etiologic Agent of Rat Bite Disease. J. Kitagawa and T. Mukoyama, Nagoya, Japan.—p. 317.
29 *Salicylates. Salicyl Edema. P. J. Hanzlik, R. W. Scott and J. L. Reycraft, Cleveland.—p. 329.
30 Study of Poliomyelitis. Report of Work of Meningitis Division of Research Laboratory in 1916 Epidemic. J. B. Neal, H. L. Abramson and Associates, New York.—p. 341.
31 Studies with Schick Test. A. Zingher, New York.—p. 392.
32 *Effect of Undernutrition on Muscular Force. Study of Influence of Low Diets, or Allen Method of Treatment on Physical Vigor of Diabetics. J. R. Williams, Rochester, N. Y.—p. 399.
33 *Auricular Flutter. Study of Case, and of Literature. J. D. Heard, Pittsburgh, and A. E. Strauss, St. Louis.—p. 409.
34 Clinical Studies on Respiration. Mechanical Factor in Production of Dyspnea in Patients with Cardiac Disease. F. W. Peabody, Boston.—p. 433.
35 *Id. Vital Capacity of Lungs and Its Relation to Dyspnea. F. W. Peabody and J. A. Wentworth, Boston.—p. 443.
36 *Id. Basal Metabolism and Minute-Volume of Respiration of Patients with Cardiac Disease. F. W. Peabody, J. A. Wentworth and B. I. Barker, Boston.—p. 468.

28. **Etiology of Rat Bite Disease.**—The two types of spirochetes, found by Kitagawa and Mukoyama in the guinea-pigs and rat, respectively, not only varied considerably with respect to size, but also showed differences with regard to the distinctness of the spirals and the pointedness of the ends, which facts seem to us to indicate that these spirochetes belong to two different species. Yet, since the staining brought out no definite distinctions between them, and as they showed practically the same number of curves, it appears possible that the above mentioned difference of form was a result of the differences existing between the inoculated animals, or that the spirochetes may have been in different stages of development. At all events, it is interesting to note that the spirochetes obtained from inoculation with the lymph gland and the lymph plasma derived from the same patient also appear to be of different sizes. Whether Type A and Type B are really identical, or, if they are not, which one is the etiologic agent, are points which must be determined.

29. **Salicyl Edema.**—It is claimed by the authors that the anuria produced by the administration of full therapeutic doses of salicylate is due to retention of water as indicated by an increase in body weight unless modified by diaphoresis. This retention is demonstrable about twenty hours after the start of administration of the salicylate and persists until the salicyl excretion is completed, that is, about eighty hours (three and one-third days). The retention occurs chiefly in the tissues, for no dilution of the blood is demonstrable by estimations of hemoglobin. The edema is accompanied by a diminution in phenolsulphonephthalein excretion together with an accumulation of urea nitrogen of the blood, and increased excretion of albumin, all of these elements reaching their previous levels with the disappearance of the edema. There is, therefore, a diminution in renal functional efficiency, and since this generally makes its appearance before an actual increase in body weight is demonstrable (edema) and later coincides with it, it seems that the renal factor plays an important rôle in the production of the edema. These phenomena are not modified by the administration of sodium bicarbonate together with the salicylate, and in doses sufficient to maintain the urine alkaline.

32. **Effect of Undernutrition on Muscular Force.**—Williams' investigation supports the common clinical observation that diabetics, as a rule, are distinctly physically weaker than normal persons. Loss of body musculature may partly explain this, but it is probable that the lessened amount of food metabolized in these cases does not provide sufficient energy for the normal exercise requirements of the body. There appears to be a direct relationship between food tolerance and muscular vigor. As food tolerance increases, so does also muscular tone. Decline in food tolerance is accompanied by loss of physical vigor. The continued use of a low diet for many months, even though it fall far short of the energy requirements of the body, provided it is within the physiologic limitations of the body to metabolize it, will cause an appreciable gain in muscular tone, although the amount of physical effort that such a person may be able to put forth may be considerably below normal. These observations also show that while diabetics living on a diet below normal physiologic requirements possess a diminished muscular vigor, feeding them beyond their metabolic limitations causes not only a further reduction in their tolerance for food, but also an even greater loss of strength. This is contrary to the view commonly held by both physicians and laymen. There is no justification for the common notion that overfeeding causes even a temporary increase in comfort or body strength. The general conclusion from this inquiry is that diabetics gain in physical vigor as they become and remain sugar free, while overfeeding causes a definite and often a serious loss of strength. Attention is called to the use of the dynamometer as a simple and fairly trustworthy method of measuring muscular tone or physical vigor.

33. **Auricular Flutter.**—A case is presented by Heard and Strauss which shows most of the well known characteristics of auricular flutter. The contour of the P deflection is discussed. The origin of auricular impulses is believed to be ectopic. The usual difficulties were encountered in the mea-

surement of A.-V. interval in flutter. The A.-V. interval was prolonged by digitalis in flutter as in normal mechanism. Emphasis is laid on the variation of auricular rate as found in the individual case of flutter, a fact which has been usually overlooked. Blood pressure studies showed marked daily variation of the systolic pressure as observed during flutter and fibrillation. There was a marked constancy of the diastolic pressure. Vagus stimulation by pressure, either over carotid artery or eyeball, produced ventricular slowing or standstill, as has been noted by previous observers. Vagus stimulation produced like results in fibrillation and in flutter. The prolongation of the refractory stage of heart muscle under the influence of repeated stimuli is noted as a possible explanation of the auriculoventricular dissociation in flutter and fibrillation. Finally, the effect of digitalis during treatment—its very early effect on conduction, its possible effect on auricular rate, the change in the T wave, and the large amount necessary to change the mechanism to fibrillation—is considered at some length.

35. **Vital Capacity of Lungs and Its Relation to Dyspnea.**—Observations on patients with heart disease show that there is a close relation between decrease in vital capacity and the tendency to dyspnea. Compensated patients, who do not complain of dyspnea on exertion, have a normal vital capacity. Patients with more serious disease, in whom dyspnea is a prominent symptom, have a low vital capacity, and the decrease in vital capacity runs parallel to the clinical condition. Changes in the clinical condition are usually associated with changes in the vital capacity. As a patient improves, his vital capacity tends to rise, and as he becomes worse, it tends to fall. Determinations of the vital capacity in cases of cardiac disease are often of practical value as they give quantitative information as to the tendency to dyspnea, and thus, indirectly, as to the clinical condition and the reserve power of the patient. In various other diseases in which mechanical conditions interfere with the movements of the lungs, the tendency to dyspnea corresponds closely to the decrease in the vital capacity. This is, however, apparently not true of the anemias. In diseases in which dyspnea is not a prominent symptom the vital capacity is usually within the normal limits, although general weakness and old age may cause a slight decrease.

36. **Basal Metabolism and Respiration of Patients with Cardiac Disease.**—Observations are reported on the gaseous metabolism and pulmonary ventilation of two groups of patients with heart disease. Group 1 consists of subjects in good or fairly good condition, in whom the vital capacity of the lungs was over 60 per cent. of the normal. Group 2 consists of much more severely affected patients in whom the vital capacity was 60 per cent. of the normal or less. The basal metabolism calculated from the oxygen consumption per square meter of body surface averaged 2.5 per cent. above normal in Group 1, and 12.8 per cent. above normal in Group 2. The average volume per respiration was less in Group 2 than in Group 1, and the average rate of respiration was higher in Group 2 than in Group 1. The minute volume of air breathed averaged approximately 30 per cent. higher in the members of Group 2 than it did in those of Group 1. The relation is pointed out between the increase of the minute volume of the more seriously affected patients and the decrease in the vital capacity of the lungs. Finally it is shown that this high minute volume is a factor in the production of dyspnea in persons with severe heart disease.

Boston Medical and Surgical Journal

September 13, CLXXVII, No. 11

37 Use of Paraffin Preparations in Treatment of Burns. E. H. Risley, Boston.—p. 343.
38 *Treatment of Old Ununited Fracture of Neck of Femur by Transplantation of Head of Femur to Trochanter. E. G. Brackett and M. S. New, Boston.—p. 351.
39 *Spina Bifida and Allied Malformations: Thirty-Four Cases. T. W. Harmer, Boston.—p. 353.
40 *Results of Radium Treatment at Collis P. Huntington Memorial Hospital by Cancer Commission of Harvard University. W. Duane and R. B. Greenough, Boston.—p. 359.
41 Mesothorium and Combination Methods in Treatment of Cancer. F. D. Donoghue, Boston.—p. 365.
42 Roentgen Diagnosis of Pathologic Gallbladder. A. W. George and R. D. Leonard, Boston.—p. 375.

38. **Treatment of Ununited Fracture of Neck of Femur by Transplantation of Head of Femur to Trochanter.**—The method considered by Brackett and New treats the femoral head as if it were a real sequestrum. The head is placed on the inner side of the top of the sawed off trochanter, and in this way the thrust is passed directly from the shaft to the head, so that there is little or no distraction strain in weight bearing, and the head has its most favorable position for a restored function. There is one contraindication. Sometimes, after joint injury, particularly in the older people, there is found a distinct osteo-arthritic change, with thinning of cartilage, as well as the tendency to overgrowths. Under these conditions, a favorable functional result could not be expected, and this operation must not be advised.

39. **Spina Bifida and Allied Malformations.**—Harmer's series includes seven meningoceles, twenty-three myelomeningoceles, three hydroencephaloceles, and one encephalocele. Twenty-three were rounded and sessile, eight rounded and pedunculated, and three flat. Twenty cases exhibited some degree of paralysis. Of these, the paralysis was increased after operation in three, it was not affected by operation in nine, and improved or cured in eight. In five of these eight the benefit was unimportant, for all died subsequently of acute hydrocephalus or meningitis. However, the paralysis which they exhibited before operation was lessened or disappeared up to the time of death. Three of these patients are still living. One patient exhibited prolapse of the rectum and incontinence of urine and feces. Now, fifteen months later, there is no prolapse, and the mother is convinced that there is increasing control of bladder and rectum. Another case exhibited sensory paralysis of both legs, motor paralysis of right foot, and prolapsed rectum before operation. The motor paralysis of the foot and the prolapse are cured but sensation in the legs is still impaired. The third case presented a myelomeningocele in the sacral region, with leaking sac and paralysis of both feet when seen twenty-four hours after birth. Operation was done at once and the child is perfectly well sixteen months later. Sixteen patients died; eighteen patients were discharged alive; a mortality of 47 per cent. The causes of death were shock, one; acute hydrocephalus, one; continued loss of cerebrospinal fluid, four; umbilical septicemia, one; meningitis, nine. Therefore, deducting the case which died of umbilical septicemia, the operative mortality is 44.1 per cent. Sixty-four and seven-tenths per cent. of the cases exhibited ulcerated or leaking sacs. Of the cases discharged alive, four exhibited some degree of paralysis, three increasing hydrocephalus, ten were well. Of the well cases, three were myelomeningoceles, all with ulcerated or leaking sacs; four were meningoceles with intact coverings, and four were encephaloceles.

40. **Results of Radium Treatment.**—Of 642 cases treated with radium, 354, or 55 per cent., received definite benefit.

Bulletin of Johns Hopkins Hospital, Baltimore

September, XXVIII, No. 319

43 Embryomas in Plants. Produced by Bacterial Inoculations. E. F. Smith, Washington, D. C.—p. 277.
44 Carrel Treatment of Wounds Applied to Civil Practice. J. S. Lawrence.—p. 294.
45 Placental Transmission; Total Creatinin in Plasma, Whole Blood and Corpuscles of Mother and Fetus. E. D. Plass, Baltimore.—p. 297.

Bulletin of Lying-In Hospital of City of New York

August, XI, No. 3

46 *Accidental Hemorrhage from Premature Separation of Placenta. J. A. Harrar, New York.—p. 151.
47 Control of Uterine Hemorrhage. A. B. Davis, New York.—p. 158.
48 Case of Cystic Lymphangioma in Newborn. R. McPherson, New York.—p. 165.
49 Asepsis in Obstetrics in Tenements. J. W. Markoe, New York.—p. 167.
50 Attitude and Responsibilities of Physician in So-Called Birth Control Movement. G. W. Kosmak, New York.—p. 181.
51 Cesarean Section for Congenital Partial Occlusion of Vagina. E. D. Truesdell, New York.—p. 199.
52 Case of Placenta Praevia in Twin Pregnancy. M. Rosensohn, New York.—p. 200.

46. **Accidental Hemorrhage from Premature Separation of Placenta.**—Among 100,000 confinements at the New York

Lying-In Hospital premature separation of the placenta took place in 254 cases, the accident occurred twice as frequently in multiparae as in primiparae. In the 152 instances of marked hydramnios in the 100,000 labors, premature separation of the placenta occurred but three times; in 1,478 cases of twins premature separation of the placenta occurred but four times; in twenty-nine cases of triplets it occurred twice. In five instances of premature separation there was evidence of an antenatal infection with elevation of temperature and a foul odor to the uterine contents when delivered. External trauma was a feature in fifteen cases, fibroids in three and a short cord in two. Twenty-two deaths occurred in the 254 cases, a maternal mortality of 8.66 per cent. The mortality was considerably higher in the so-called "concealed" hemorrhage cases. There were twenty-four cases of disruptive concealed hemorrhage with six deaths, a mortality of 25 per cent. Eighteen of these, however, showed some external bleeding as well. In the six with absolutely concealed hemorrhage of the disruptive type but one died, and this one apparently died of an accompanying eclampsia. There were 133 stillbirths, a fetal mortality of 50.8 per cent. in the 262 babies born. Thirty infants died in the first ten days, making a total fetal and infantile mortality of 62.2 per cent. In the concealed hemorrhage group the only child that survived was delivered by cesarean section.

As to the treatment and method of delivery of these 254 cases of accidental hemorrhage; sixty-eight delivered themselves spontaneously after simple rupture of the membranes, with two late deaths, both due to infection; twenty-seven delivered themselves spontaneously after the insertion of a cervicovaginal packing of iodoform gauze, with no deaths; eight spontaneously after the use of a Voorhees bag with one immediate death, due to hemorrhage and eclampsia. Version was performed eighty-one times with ten maternal deaths. It was done fourteen times after cervicovaginal packing, twenty-two times after manual dilatation of the cervix, and twenty times as part of an accouchment forcé. Forceps completed the delivery in twenty-nine cases with three deaths. Breech extraction was done nineteen times. Vaginal cesarean section was done five times with one death. Abdominal cesarean section was done seven times with no maternal death. The highest mortality occurred in the group of cases in which version was done after forcible manual or instrumental dilatation of the cervix. Harrar recommends in the treatment of accidental hemorrhage, rupture of the membranes in the very mild cases, rupture of membranes and the use of the cervicovaginal packing in the more severe cases, reserving the use of the abdominal cesarean section in the grave concealed hemorrhage cases with closed cervix, and doing a hysterectomy only when there is accompanying partial or complete rupture of the uterus.

California State Journal of Medicine, San Francisco

September, XV, No. 9

53 Case of Splenectomy in Pernicious Anemia. H. M. Sherman, San Francisco.—p. 338.
54 Some Unusual Aspects of Exophthalmic Goiter; Case Reports. G. D. Barnett, San Francisco.—p. 342.
55 Disability from Injury to Feet. G. J. McChesney, San Francisco.—p. 344.
56 Therapeutic Application of Hypertonic Salt Solution in Conjunction with Leukocytic Extract. R. A. Archibald and G. Moore, Oakland.—p. 345.
57 Intestinal Crises Simulating Chronic Appendix Disease Diagnosed by Roentgen Ray Findings. M. P. Burnham and L. B. Crow, San Francisco.—p. 348.
58 Aneurysm. C. D. Lockwood, Pasadena.—p. 352.
59 Uterine Fibromyomas, Their Causation, Prevention and Conservative Treatment; Case Reports. W. A. Briggs, Sacramento.—p. 354.
60 Modern Treatment of Bladder Tumors. M. Krotoszyner, San Francisco.—p. 359.
61 Tumors of Kidney. S. Stillman, San Francisco.—p. 363.
62 Treatment of Drug and Alcoholic Addictions. A. C. Matthews, Napa.—p. 366.
63 Patent Medicine Evil. P. K. Brown, San Francisco.—p. 371.
64 Abortion Evil in Small Town. W. B. Smith, Randsburg.—p. 374.
65 Use of Aspirator for Removing Pus, Blood, Exudate, Transudate and Bowel Contents During Surgical Operations. E. Butler, San Francisco.—p. 375.
66 Practical Roentgenography for General Practitioner. A. Soiland, Los Angeles.—p. 376.

Delaware State Medical Journal, Wilmington

September, VIII, No. 9

67 Medical Science in Its Relation to Crime. W. H. Kraemer, Wilmington.—p. 4.
68 Spinal Anesthesia. J. A. Mendelson, New York.—p. 7.

Illinois Medical Journal, Chicago

September, XXXII, No. 3

69 Treatment of Catarrhal Deafness. M. F. Arbuckle, E. St. Louis.—p. 153.
70 What State Can Do to Prevent Blindness. W. O. Nance, Chicago.—p. 155.
71 New Method of Dealing with Nasal Septum. J. A. Cavanaugh, Chicago.—p. 161.
72 Treatment of Membranous Cataract. H. W. Woodruff, Joliet.—p. 164.
73 Primary Mastoiditis; Report of Case. R. Sonnenschein, Chicago.—p. 167.
74 Depressed Nasal Deformities Corrected by Bone Transplantation. L. Ostrom, Rock Island.—p. 169.
75 Radical Mastoid Operation—Its Terminations—With Special Reference to Hearing and Suppuration. C. H. Long, Chicago.—p. 171.
76 Kronlein Operation; Report of Case. E. E. Edmondson, Mount Vernon.—p. 175.
77 Operation for Anterior Synechia Used in Cases of Secondary Glaucoma and Staphyloma. C. G. Darling, Chicago.—p. 177.
78 Use of Trichloracetic Acid in Atrophic Rhinitis. W. G. Hatch, Rockford.—p. 178.
79 Diagnosis of Acute Mastoiditis and Indications for Operation. A. E. Sherman, Aurora.—p. 179.
80 Interpretation of Findings of Transilluminator. W. G. Reeder, Chicago.—p. 181.
81 How Eye and Ear Service in General Hospitals Can Be Improved. F. Allport, Chicago.—p. 182.
82 Treatment of Vitreous Opacities. W. H. Peck, Chicago.—p. 186.
83 Importance of After-Treatment of Tonsillar Fossa During Secondary Period Following Tonsillectomy. C. F. Burkhardt, Effingham.—p. 188.
84 Decompression Operation on Hypophysis by Nasal Route. O. J. Stein, Chicago.—p. 192.
85 Management of Malignant Diseases of Upper Respiratory Tract. J. C. Beck, Chicago.—p. 194.

Journal of Biological Chemistry, Baltimore

September, XXXI, No. 3

86 *Modification of McLean-Van Slyke Method for Determination of Chlorids in Blood. G. L. Foster, Boston.—p. 483.
87 *Function of Muscular Tissue in Urea Formation. R. Hoagland and C. M. Mansfield, Washington, D. C.—p. 487.
88 *Glycolytic Properties of Muscular Tissue. R. Hoagland and C. M. Mansfield, Washington, D. C.—p. 501.
89 Tables for Finding Alkaline Reserve of Blood Serum, in Health and in Acidosis, from Total Carbon Dioxid or Alveolar Carbon Dioxid or pH at Known Carbon Dioxid Tension. J. F. McClendon, A. Shedlov and W. Thomson, Minneapolis.—p. 519.
90 Effect of Temperature on Reaction of Lysin with Nitrous Acid. B. Sure and E. B. Hart, Madison, Wis.—p. 527.
91 *Methods for Determination of Blood Sugar in Reference to Its Condition in Blood. H. McGuigan and E. L. Ross, Chicago.—p. 533.
92 *Origin of Creatin. L. Baumann and H. M. Hines, Iowa City, Iowa.—p. 549.
93 *Production of Creatinuria in Normal Adults. W. Denis and A. S. Minot, Boston.—p. 561.
94 *Experimental Studies on Growth. Influence of Tethelin on Early Growth of White Mouse. T. B. Robertson and M. Delprat, Berkeley, Calif.—p. 567.
95 *Blood Lipoids in Nephritis. W. R. Bloor, Boston.—p. 575.
96 *Dynamics of Process of Death. W. J. V. Osterhout, Cambridge.—p. 585.
97 Structure of Yeast Nucleic Acid. P. A. Levene, New York.—p. 591.
98 Removal of Nitric Acid from Solutions or Organic Compounds. P. A. Levene and G. M. Meyer, New York.—p. 599.
99 Preparation of Lyxose. E. P. Clark, New York.—p. 605.
100 Chondrosamin and Its Synthesis. P. A. Levene, New York.—p. 609.
101 Relation between Configuration and Rotation of Epimeric Monocarboxylic Sugar Acids. The Phenylhydrazides. P. A. Levene and G. M. Meyer, New York.—p. 623.
102 Cerebrosids. Conditions for Hydrolysis of Cerebrosids. P. A. Levene and G. M. Meyer, New York.—p. 627.
103 Id. Cerasin. P. A. Levene and C. J. West, New York.—p. 635.
104 Id. Cerebrosids of Kidney, Liver and Egg Yolk. P. A. Levene and C. J. West, New York.—p. 649.

86. **Determination of Chlorids in Blood.**—Foster found that thoroughly reliable results are obtained by applying the original McLean-Van Slyke titration to the filtrates obtained after coagulating the blood proteins with metaphosphoric acid. The additional acidity due to the metaphosphoric acid is not sufficient to interfere with the sensitiveness of the starch iodin end-point, being only about 2 per cent. of that due to

the nitric acid. The coagulum formed by the addition of meta phosphoric acid to the diluted blood or plasma is very finely divided, and the diffusion of chlorids to uniform concentration throughout the mixture is complete in ten minutes if the flask is shaken occasionally.

87. **Muscular Tissue and Urea Formation.**—The purpose of the experiments reported by Hoagland and Mansfield was to determine whether or not urea-forming enzymes are present in muscular tissue. Taken as a whole, the results show that urea formation is not an important function of muscular tissue. In view of the well established fact that the liver plays an important part in the formation of urea in the body, these findings lend support to the view that urea production is chiefly a function of that organ.

88. **Glycolysis of Muscular Tissue.**—According to Hoagland and Mansfield muscular tissue autolyzed under aseptic conditions shows appreciable glycolytic properties. Glycolysis takes place most rapidly within a comparatively few hours after the death of the animal. The glycolysis that took place under the conditions of these experiments did not result in the production of carbon dioxid. Muscular tissue apparently has the ability to synthesize carbohydrates. In part at least, and probably in their entirety, the processes by which sugars are utilized by the animal body are enzymatic in nature.

91. **Determination of Blood Sugar.**—The work done by McGuigan and Ross corroborates the work of von Hess and McGuigan, showing that the sugar in the blood reacts as it does in a water solution.

92. **Origin of Creatin.**—The authors do not offer any evidence for the methylation of glycocyamin by muscle or liver tissue in vitro. The injection of glycocyamin into rabbits and dogs may be followed by an increased excretion of creatin.

93. **Creatinuria in Normal Adults.**—In two normal women Denis and Minot were able to cause creatin excretion by feeding a high protein (creatin free) diet, and to cause the creatinuria so produced to disappear by the consumption of a low protein diet. In two men to whom a similar experimental procedure was applied the authors were unable to produce creatin excretion even when a sufficient amount of protein was consumed to cause the urinary nitrogen to rise to 34.5 gm. per day.

94. **Effect of Tethelin on Early Growth.**—From the total lack of effect of the administration of tethelin to the mother on the growth of suckling young the authors believe that one may infer either that tethelin exerts no effect on growth during the first (infantile) growth cycle or else, which is more probable, that the tethelin administered to the mother is not secreted as such to any appreciable extent by the mammary glands of the mother. The administration of tethelin to the young subsequently to the fourteenth day, when their eyes are open and they have access to food other than that supplied to the mother, results in a noticeable acceleration of growth during the second growth cycle (second to the fifth weeks), followed on initiation of the third cycle, by a marked retardation which evidences itself despite the fact that the administration of tethelin is discontinued at the end of the fifth week.

95. **Blood Lipoids in Nephritis.**—The abnormalities in the blood lipoids in severe nephritis were found to be high fat in plasma and corpuscles and high lecithin in the corpuscles. The cholesterol values were practically normal. These abnormalities are the same as are found in alimentary lipemia and for this reason are regarded by Bloor as the result of a retarded assimilation of fat in the blood, which in turn is thought to be one manifestation of a general metabolic disturbance brought about by a lowered "alkali reserve" of the blood and tissues.

96. **Dynamics of Process of Death.**—Osterhout found that by measuring the electric conductivity of tissues placed in toxic solutions the process of death can be followed in the same manner as the progress of a reaction in vitro. Death proceeds as a monomolecular reaction which is somewhat inhibited at the start. This is easily explained if consecutive reactions are involved in the process of death. This explanation also applies to many other cases of toxic action. In all these cases death behaves as a reaction which is continually going on and which is accelerated by the toxic agent.

Journal of Medical Research, Boston

September, XXXVII, No. 1

105 *Periarteritis Nodosa; Report of Two Cases. O. Klotz, Pittsburgh.—p. 1.
106 *Treatment with Bacterial Vaccines of Bronchial Asthmatics Who Are Not Sensitive to Proteins. I. C. Walker, Boston.—p. 51.
107 *Erythrocytic Origin of Blood Platelets. V. E. Emmel, Chicago.—p. 67.
108 Factors which Determine Movements of Tissues in Culture Media. L. Loeb and M. S. Fleisher, St. Louis.—p. 75.
109 *Studies on Common House Fly (Musca Domestica, Linn). Bacteriology of House Fly in District of Columbia. J. R. Scott.—p. 101.
110 *Id. Isolation of B. Cuniculicida; Unreported Isolation. J. R. Scott.—p. 121.
111 *Production of Acute and Chronic Kidney Lesions with Bacillus Mucosus Capsulatus. R. H. Major, Rosedale, Kan.—p. 125.
112 *Phagocytosis in Vivo under Various Conditions. C. J. Bartlett and Y. Ozaki, New Haven, Conn.—p. 139.
113 Preparation of Hemoglobin for Clinical Investigations. A. W. Sellards and G. R. Minot, Boston.—p. 161.
114 *Myeloma with Metastasis to Liver and Spleen. O. H. P. Pepper and R. M. Pearce, Philadelphia.—p. 171.
115 *Problem of Acid-Fast Organisms in Distilled Water. R. A. Keilty, Philadelphia.—p. 183.

105. **Periarteritis Nodosa.**—Two cases of periarteritis nodosa are added by Klotz to the forty cases previously recorded in the literature. The first case was a woman 33 years of age, whose past history does not bear on her final illness. Syphilis was not considered as a possible factor, so that a Wassermann was not performed. Her final illness was of four weeks' duration, beginning with a severe cold following exposure to inclement weather. Muscle and joint pains were prominent, and subsequently these were followed by severe, cramp-like pains in the abdomen. She ran a continuous temperature over 100 F. There was some leukocytosis and albuminuria and slight icterus. Death occurred suddenly in collapse. The necropsy revealed the typical lesions of periarteritis nodosa with aneurysms and thromboses distributed along the hepatic and cystic arteries. Rupture of one of these hepatic arteries led to extensive hemorrhage about the liver and into the peritoneum. There were no other serious acute lesions nor were there any infectious deposits about the heart.

The second case occurred in a man 53 years of age, who previously had suffered considerable illness. He had had acute rheumatic fever. His present illness began after an exposure to rain and cold, from which he was slow in recovering. During his illness he developed tonsillitis, which in a few days was followed by the appearance of bluish nodules in the skin. Dyspnea and cyanosis were evident throughout his illness, apparently associated with an old cardiac lesion. His Wassermann reaction was positive. He had quite a marked anemia, with some leukocytosis. From the time of the onset of his tonsillitis, he ran a continuous through irregular temperature over 100 F. During life one of the skin nodules was removed, but a diagnosis of the arterial lesion could not be made owing to the rather extensive disintegration and hemorrhage which occupied the area excised. Cultures from these nodules were negative, as were also the blood cultures. Clinical manifestations of an intra-abdominal condition were not apparent. The patient died rather unexpectedly, although during the last week of his illness, he was becoming progressively weaker. His total illness extended over a period of about three months. It is evident that the patient was primarily suffering from a cardiac lesion of not uncommon type, and that the acute periarteritis was an associated complication superadded to his other illness.

106. **Vaccine Treatment of Bronchial Asthma.**—The fifteen patients who were treated by Walker are placed into three groups: Group I, six patients whose serums agglutinated strains of *S. pyogenes-aureus* in a high titer, and for this reason these patients were treated with stock vaccines of this organism; Group II, six patients who were treated with a diphtheroid vaccine because this type of organism was the predominating one in their sputums, and because there was

no positive evidence in favor of any other kind of treatment; Group III, contains three patients who show that conditions or diseases quite remote from bronchial asthma may play some part in the cause of bronchial asthma, or at least may produce symptoms which simulate bronchial asthma. All of the patients of Group I were relieved of asthma and all associated symptoms by stock vaccine of *S. pyogenes-aureus.* Only one patient of Group II was relieved by diphtheroid vaccines. Of Group III one case was associated with hernia, and relief from the hernia by operation was accompanied by relief from asthma. A second case was associated with pituitary disease. The history of the third case would suggest a diagnosis of bronchial asthma and the administration of epinephrin relieved the symptoms. Walker points out that it is quite possible that so-called bronchial asthma in patients who are sensitive to proteins is not true bronchial asthma; it is evident that cardiac, renal, pulmonary and pituitary disease all may cause symptoms which simulate bronchial asthma.

107. **Origin of Blood Platelets.**—On the basis of a careful examination of the blood of one case Emmel states that the structural changes undergone by many of the red blood corpuscles in anemic blood are such as to be especially conducive to the production of the conditions which have been described as demonstrating the origin of blood platelets from erythrocytes. In such cases a mass of blood platelets may become adherent to the surface of the erythrocyte, the contents of the corpuscles are displaced to one side with a consequent production of a very thin transparent area in the region of contact. These conditions, together with an occasional rupturing of the weakened membrane in this region during the preparation of the material, produce the deceptive appearance of a dehiscent erythrocyte extruding blood platelets. In normal blood, in which the erythrocytes are more stable in form and structure, the so-called eviscerating corpuscles are not so obviously in evidence.

109. **Bacteriology of House Fly.**—Certain bacteria which might be of importance in the spread of infectious disease were isolated by Scott from the bodies and intestinal tract of flies. Other bacteria, while of themselves not pathogenic under normal circumstances, but which have been universally accepted as being indicators of dangerous contamination by excreta, were frequently found. Such organisms include the colon bacillus, indicating that the insect has recently come into contact with fecal excretions. The finding of the pyogenic cocci on flies suggests the possibility that this insect may be the agent in the transmission of suppurative organisms from man to man, and may afford an explanation of the spread of gangrene in field hospitals under war conditions. The following pathogenic organisms were isolated from these flies: *Staphylococcus pyogenes-aureus, albus* and *citreus; tetragenus, B. acidi-lactici; B. coli-communis; B. coli-communior; B. suipestifer; B. coli-anaerogenes; B. proteus-vulgaris; B. cuniculicida; Strephtococcus fecalis* and *pyogenes.*

110. **Isolation of B. Cuniculicida.**—*B. cuniculicida* was recovered by Scott from two common house flies during the course of investigations. This is said to be the first reported instance of such recovery.

111. **Bacteriologic Production of Acute and Chronic Kidney Lesions.**—With a single exception all of the *twenty-one* animals which received the intravenous injections of living cultures of *B. mucosus-capsulatus* showed either acute or chronic kidney lesions.

112. **Phagocytosis in Vivo.**—Bartlett and Ozaki found that when the leukocytes become less capable of ingesting bacteria, the phagocytic tissue cells of the lung, spleen and the liver act to a greater or less extent in a compensatory way for the deficient part of leukocytes. This fact is of great significance for the elimination of bacteria from the circulating blood. The bacteria introduced into the blood stream are chiefly detained by the spleen and liver, if the lung is excluded, where the detention of bacteria is chiefly temporary. This peculiar biologic property of the spleen and liver is, if not completely, partly lost when these organs undergo a marked degeneration. This probably depends on the lessened vitality of the macrophages present in these organs.

114. **Myeloma with Metastasis to Liver and Spleen.**—The view that true myeloma does not form metastases has been emphasized ever since the first recognition of this condition. There is, however, a small group of cases in which the tumor described seems truly to belong to the myeloma group, and in connection with which there have been found foci of identical tumor tissue at some distance from the bony involvement. A summary of such cases found in the literature is given by Pepper and Pearce and a case is reported which they believe belongs in this group. This case is of unusual interest in that no definite nodules of myeloma were demonstrable by Roentgen rays or at necropsy, and secondly, because there was found throughout the liver and spleen, which were grossly normal, a diffuse infiltration of microscopic foci of cells identical with those of the bony tumors. These findings seem to justify a claim of true metastasis formation in this case. Most of the features of this case are in close accord with the typical findings in myeloma. The male sex, the advanced age, 52 years, the nature and distribution of the pains, and the fatal outcome after a slowly progressive course are all characteristic. So also are the anemia and the Bence-Jones proteinuria. The white corpuscles were present in a proportion of 1 to 100 red blood cells and the differential count showed 21.9 per cent. myelocytes. The bones affected were those most commonly involved.

115. **Acid-Fast Organisms in Distilled Water.**—Keilty calls attention to factors not previously reported concerning acid-fast bodies and bacteria in distilled water. He divides distilled water into sterile, sterilized, clean and dirty. Sterile distilled water is free from all bacterial bodies. Distilled water may be contaminated in the still, the tank or collecting bottle, and show different types of organisms, including acid-fasts in most instances. The acid-fasts may or may not be morphologically like the tubercle bacillus. The older the distilled water is and the larger the amount of sediment present, the greater the number of acid-fasts will be found. In perfectly clean, but nonsterile distilled water acid-fasts may appear after standing for a month. Keilty concludes that in all bacteriologic work it is advisable to use sterile distilled water collected in sterile stills, tanks and bottles.

Kansas Medical Society Journal, Topeka

September, XVII, No. 9

116 Jaundice in Newborn. M. Hahn, Arkansas City.—p. 237.
117 Fractures of Lower End of Humerus. J. F. Hassig, Kansas City.—p. 242.
118 Intoxication. J. Baird, Coffeyville.—p. 244.
119 Therapeutic and Diagnostic Value and Technic of Lumbar Puncture. J. J. Harrington, Osawatomie.—p. 246.

Medical Record, New York

September 15, XCII, No. 11

120 Digitalis in Treatment of Auricular Fibrillation; Report of Three Cases of Arrhythmia. H. C. Gordinier, Troy.—p. 441.
121 Compromising with Consumptives. J. B. Hawes, 2d, Boston.—p. 447.
122 Pathologic Physiology of Heart as Revealed by Polygraph and Electrocardiograph. L. F. Bishop, New York.—p. 450.
123 Practical Points in Use of Strophanthus. E. E. Cornwall, Brooklyn.—p. 451.
124 Some Suggestions Regarding Urethritis Patient. W. S. Reynolds, New York.—p. 453.
125 Time Element in Some Physical Processes. J. A. Hagemann, Pittsburgh.—p. 456.

New Jersey Medical Society Journal, Orange

September, XIV, No. 9

126 Observations on Thyroid. J. F. Hagerty, Newark.—p. 341.
127 Diagnosis of Ectopic Pregnancy. F. W. Langstroth, Ridgefield Park.—p. 349.
128 Parturient and Practitioner. W. B. Warner, Red Bank.—p. 352.
129 St. Michael's Hospital Jubilee. E. J. Ill, Newark.—p. 355.

New York Medical Journal

September 15, CVI, No. 11

130 Peroral Endoscopy. H. Arrowsmith, Brooklyn.—p. 485.
131 Control of Hemorrhage from Upper Digestive Tract. E. L. Kellogg, New York.—p. 487.
132 Conclusions Drawn from Comparative Study of Different Methods of Performing Wassermann Reaction. J. Bronfenbrenner, Boston, and M. J. Schlesinger, Pittsburgh.—p. 489.
133 Emotional Influences in Gastro-Intestinal Diseases. M. G. MacNevin, New York.—p. 491.

134 Use of Term "Hysteria." M. Solomon, Chicago.—p. 494.
135 Serovaccine Treatment of Pneumonia. J. Broder, New York.—p. 499.
136 Causes of Appendicitis. H. P. De Forest, New York.—p. 501.
137 Hygiene of Rural Schools. J. A. Nydegger, Baltimore.—p. 505. To be concluded.

Philippine Journal of Science, Manila

January, XII, Sec. B, No. 1

138 Experimental Acclimatization to Tropical Sun. A. O. Shaklee, Manila.—p. 1.
139 Influence of Bile on Distribution of Cholera Vibrios in Digestive System of Experimental Cholera Carriers. O. Schöbl, Manila.—p. 23.
140 Common Intestinal Parasites. F. Garcia, Cebu.—p. 25.
141 Case of Advanced Pregnancy in Broad Ligament. P. Guazon, Manila.—p. 33.

Washington Medical Annals

September, XVI, No. 5

142 Ureter Stricture; Report of One Hundred Cases. G. L. Hunner, Baltimore.—p. 281.

Wisconsin Medical Journal, Milwaukee

September, XVI, No. 4

143 Social Service, an Ally of Preventive Medicine. A. L. Murray, Milwaukee.—p. 115.
144 Tests for Estimating Functional Efficiency of Kidneys. J. F. Schneider, Oshkosh.—p. 119.
145 Outlines for County Medical Meetings. E. Evans, La Crosse.—p. 122.
146 County Society and Laboratory. J. M. Dodd, Ashland.—p. 124.
147 Would Old Age and Disability Pension for Aged and Needy Physicians Be Possible? R. W. Cairns, River Falls.—p. 126.
148 Ways and Means of Increasing Income of State Society and of Establishing Trust Funds. T. J. Redelings, Marinette.—p. 128.
149 Training in Camp Life. M. R. Wilkinson.—p. 130.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

August, XXII, No. 3

1 Suppression of Inverse Current in Discharges from Secondary Terminals of Induction Coils (Including New Method of Exciting Roentgen Ray Bulb, with Special Reference to Coolidge Tube). J. A. Shorten and T. W. Barnard.—p. 65.
2 Some New Mechanotherapeutic Apparatus. J. Hall-Edwards.—p. 82.
3 Roentgenography of Duodenum, with Special Reference to Lesions Beyond First Portion. J. T. Case.—p. 87.

British Medical Journal, London

August 11, II, No. 2954

4 Institutes of Surgery: Historical Review. B. Moynihan.—p. 171.
5 Reconsideration of Principles and Methods of Hugh Owen Thomas. Some Reflection on Thomas' Splints and Practice. J. L. Thomas.—p. 175.
6 Origin of Orthopedic Surgery. A. R. Jones.—p. 180.
7 Use and Abuse of Bone Grafts. T. P. McMurray.—p. 180.
8 *Possible Electrocardiographic Sign of Myocardial Change. S. R. Wells and J. S. Goodall.—p. 182.

September 1, No. 2957

9 *Treatment of Wounded Knee Joint. H. G. Barling.—p. 277.
10 *Early Treatment of Gunshot Wounds of Knee Joint. H. M. W. Gray.—p. 278.
11 Results of Sixty Consecutive Cases of Wounds of Knee Joint. W. H. Ogilvie.—p. 280.
12 *Treatment of Gunshot Wounds of Knee Joint. C. M. Page.—p. 282.
13 Treatment of Certain Selected Cases of Septic Arthritis of Knee. W. Rankin.—p. 287.

8. **Electrocardiographic Sign of Myocardial Change.**—As the result of the examination of several thousand cardiac cases Wells and Goodall have become increasingly convinced that the height of the second ventricular or T wave affords some indication of the efficiency with which the ventricles are functioning. They report two illustrative cases with a syphilitic history. One patient complained of pain in the left side, only being able to sleep when lying on the right side, pain over the sternum, slight dyspnea, and a sensation of sickness over his heart on exertion, which was increased by exercise and after meals; there was no cough or edema. The area of cardiac dulness was slightly enlarged, the apex beat being in the fifth space near the nipple line; the first sounds were weak but no murmur was audible; the pulse rate 100, blood pressure 140; he did 10,107 foot pounds of work in two minutes, there was a poor reaction to work and he showed signs of collapse. The electrocardiogram showed an absence of second ventricular or T waves in Leads 1 and 2 with inversion in Lead 3. He was treated with mercurial inunctions and steadily improved. When examined again in 1916 his pains had disappeared, the cardiac dulness was still slightly increased, but the apex beat was well within the nipple line, the first sound at the apex was flapping and short, the second reduplicated, the aortic and pulmonary second sounds were audible, the blood pressure was 118; the electrocardiogram showed well marked second ventricular waves in Leads 1 and 2 with inversion in Lead 3.

The second patient complained of dyspnea and palpitation on exertion and a constant feeling of lassitude, and said that he fainted on excitement or any overexertion. He was markedly anemic, the pulse rate was 60, volume very small; the apex beat was diffuse and almost impalpable; the area of cardiac dulness was greatly enlarged, extending from 2 inches to the right of the midsternal line to over 5 inches to the left; Roentgen-ray examination revealed a very large heart, the shadow agreeing with the limit as defined by percussion; it was obviously soft and atonic, as it was horizontally placed and seemed to be lying on the diaphragm. The first sound at the apex was very faint and flapping in character, the second sounds were audible at base and apex, no murmurs could be heard; he was not exercised, nor was his blood pressure taken, as he fainted twice during examination. His electrocardiogram showed very poorly marked second ventricular waves in Lead 1, almost absent in Lead 2 and completely so in Lead 3. He was treated with mercurial inunctions and improved. The cardiac area was reduced in size. The electrocardiogram showed well marked T waves in Leads 1 and 2, and distinct T waves in Lead 3.

9. **Treatment of Wounded Knee Joint.**—Barling analyzes 845 cases. In a very high proportion of cases excision of the wound, removal of bone when necessary, removal of any retained foreign body, irrigation of the joint and closure by suture has been followed by a perfectly satisfactory healing without further interference. The proportion of these cases requiring further intervention is 25.5 per cent., and Barling believes that free use of the joint is likely to result in a large majority of those in whom the primary operation was successful. In the group in which complete closure was not possible or was deemed inadvisable, and in which the wound was packed, the results are not so good. This group includes the worst cases of injury to the bones entering the knee joint. Here the proportion of cases in which further operative interference was required is 38.4 per cent. Very useful joint function may result in many cases. Excision of the wound, removal of bone when required, removal of foreign body, suture of the wound, if possible, and packing as an alternative in selected cases, is the program Barling recommends. In a considerable number of instances materials such as formaldehyd solution and glycerin or ether have been injected and retained in the joint cavity. A few surgeons pack the joint with urea, and favorable results were obtained. One operator makes a separate incision at some distance from the wound of entry, thus securing that at all events he drives nothing septic into the joint.

Barling questions whether it matters much what fluid is used to wash out the joint, the main advantage is the mechanical cleaning out of septic material, fibrin and blood clot; but this should be done thoroughly through a free opening; the use of cannulas for this purpose is insufficient. Barling deprecates aspiration of the joint and irrigation or injection with an antiseptic fluid and would only resort to it if the fluid showed only a low corpuscular element, a moderate polymorphonuclear count, and a sparsity of infective organisms, conditions which will rarely be found. Mere aspiration is apt to be followed by a breaking of infection through the capsule of the joint and a spread into the surrounding tissues, a grave addition to the patient's troubles most difficult to overcome. Regarding aspiration as rarely a wise measure, Barling mentions three other courses: (1) free opening up of the joint; (2) excision of the joint, and (3) amputation.

10. Treatment of Gunshot Wounds of Knee Joint.—In dealing with operative cases Gray believes that if the injury has implicated the main vessels so that the foot is already cold and dead, amputation should be done just above the knee if the wound is likely to remain fairly clean, and through the knee if sepsis is present and the condyles are undamaged. In the latter class of cases reamputation is frequently necessary, and when the condyles are left it can be done so as to provide the longest possible thigh stump. If, as sometimes happens, one or other popliteal nerve is shot away so extensively that it cannot be sutured later on, and if the bones are much soiled as well as comminuted, the probability is that primary amputation is the best course. If sepsis is well established in presence of much comminution, especially if there be gas gangrene, and the patient in low condition from hemorrhage or toxic absorption, amputation must be done. If, in less severe cases, the opposing ends of the long bones are so comminuted that smooth articular surfaces are not available, it is probably best to do primary resection in the way recommended by Fullerton. If large fragments have resulted from the injury, if the patient has been received early and is in good condition, and if one is fairly sure of getting away infective material, the patient should be given a chance. As a general rule, if the patella alone has been shattered, as happens fairly frequently, the fragments should be removed.

If possible, the synovial cavity should be closed, except for a small drainage opening, by suturing the lateral edges and aponeuroses, possibly after undercutting the synovial membrane on each side, or by loosening the suprapatellar pouch as already described. If this cannot be done, a "salt pack" should be used. The same procedure should be carried out if concomitant injury to other bones is not extensive. In considering the question of amputation, these points are of great importance: the possibility of removing or neutralizing infective material successfully, the amount and kind of comminution, the concomitant injury to vessels or nerves, and the condition of the patient. When conservative measures are decided on, the following are the most important operative details: determination of the track which leads to the depth; thorough disinfection of skin and track; careful and complete excision of external wound and track, including the edges of the wound in the synovial membrane, if possible in one piece. Pockets must not be cut into. The least little bit of infected tissue left behind may prevent success; provision of ample access to foreign bodies or comminuted surfaces in the joint.

Careful removal, under direct vision whenever feasible, of all foreign material, whether free in the joint or embedded in the articular surfaces. Closure of the wound in layers, using fine catgut for the synovial membrane. Drainage tubing should not project into the joint. If the wound in the synovial membrane cannot be closed, a small "salt pack," separate from any other which may be required for the rest of the wound, should be inserted firmly "down to but not into" the joint, and should be left until it is absolutely loose. Tendinous or ligamentous structures exposed during operation should be covered by skin and subcutaneous tissue; otherwise they are very apt to slough, and this postpones closure of the wound, and therefore prolongs convalescence. If there is much effusion into or from the joint, of whatever nature, or if raw surfaces, whether of bone or soft tissue, are left in the joint, at the end of operation, a tube should always be inserted "down to but not into" the synovial cavity. The injection of ether, formaldehyd solution, glycerin, or hypertonic (5 per cent.) saline solution into closed joints, is of doubtful value. They are all irritants.

12. Id.—In dealing with wounds of the knee joint Page urges that the natural defensive powers of the part against infection should be borne in mind. Primary prophylactic (that is, within twenty-four hours of injury) operations should be radical, and secondary operations undertaken on account of progressing infection, should, short of amputation, be planned on conservative lines. The expectant treatment of wounds of the knee joint is only justifiable in the case of typical perforating injuries due to a rifle bullet. All wounds of the joint caused by shell fragments or distorted bullets should be considered as primarily infected. The primary prophylactic treatment should consist in the removal of any foreign bodies present and in the excision of the whole wound track at the earliest possible time after injury. The results at present are particularly bad in cases in which gross comminution of the diaphyses is present. A primary excision or erasion of the joint (within twenty-four hours) would probably improve the results in such instances by preventing the development of entomyelitis. Repeated aspiration of the joint and the intra-articular injection of any of the antiseptics in common use are calculated to prejudice the natural defense. It is safest to leave for a few days some drainage along the wound track after operation, certainly when bone injury is present. Any infection then left may become localized in the same way as occurs in the case of the peritoneum. A gauze wick makes a satisfactory form of drain. Immobilization of the joint during all critical periods is essential. An interrupted plaster-of-Paris splint affords the best means of effecting this. When general infection of the joint has taken place treatment by fixation, lateral arthrotomy and immunization gives the best chance of saving the limb. Secondary abscesses are to be expected, and should be evacuated after their complete development. Neither cross section and flexion of the joint or secondary excision of the knee are sound procedures.

Lancet, London

September 1, II, No. 4905

14 Meat Inspection, with Special Reference to Developments of Recent Years. W. J. Howarth.—p. 335.
15 *Physiologic and Antiseptic Action of Flavine. A. Fleming.—p. 341.
16 Nervous Unrest in Infant as Cause of Failure of Breast Nursing. H. C. Cameron.—p. 345.
17 Some Principles of Plastic Surgery: Incisions, Contour and Suture. —J. L. Aymard.—p. 347.
18 *Method of Applying Antiseptics to Deeper Parts of Wounds. T. H. Kellock.—p. 348.
19 Membranous Conjunctivitis Following Squint Operation. S. J. Taylor.—p. 348.
20 Clinical Manifestations of Doubtful Case. M. J. Petty.—p. 348.
21 Petroleum in Treatment of Pyorrhea Alveolaris. H. J. Corin.—p. 349.

15. Physiologic and Antiseptic Action of Flavine.—Fleming found that flavine has a very destructive action on leukocytes, and if the action on leukocytes and bacteria be each tested for twenty-four hours its leukocidal action is far in excess of its bactericidal action. In serum under certain conditions staphylococci will grow in 1 in 32,000 flavine, *B. coli* in 1 in 1,000, and *B. proteus* in 1 in 2,000. Flavine 1 in 8,000 appears to aid the growth of *B. proteus*. Flavine 1 in 500 is usually unable to sterilize in twenty-four hours an equal volume of pus from a wound. Flavine injected intravenously in large doses immediately disappears from the blood (which acquires no bactericidal power), and is taken up by the tissues, which become yellow but acquire no inhibitory power on the growth of bacteria. Flavine 1 in 100 injected into the pleural or peritoneal cavities loses its antiseptic power within twenty-four hours. If the antiseptic is allowed to act on staphylococci and leukocytes alike for twenty-four hours and the ratio is taken of its toxicity to both of these, phenol has a coefficient ten times better than flavine when the antiseptic acts on the microbes in serum and 250 times better when the bactericidal action is estimated in pus.

18. Method of Applying Antiseptics to Wounds.—The Carrel method, Kellock says, has certain disadvantages. The tubes generally used are perforated with round holes for some distance from the closed end, and if there be much resistance to the exit of fluid at the deepest part the solution finds its way through the openings nearer the surface of the wound and so the deeper parts are not reached. These tubes, too, act to a certain extent as drains. Pus finds its way into them through the openings and is washed back into the wound again when fluid is allowed to flow. Another disadvantage of the method is the necessity of keeping the patient still. Movement on his part is apt to cause the tubes to be drawn out of the wounds, and it is not at all an uncommon experience to find tubes that were originally inserted deeply into a wound lying only just under, or even on, the surface. Attempting to improve on this, Kellock has found the following method of much service. Taking a piece of drainage tube about 8 or 10 inches in length and of caliber about equal to that of a No. 8 catheter, the end is securely closed by a ligature and a small oblique incision made with sharp scissors as near as possible to the closed end. The incision should cut a small valve with apex directed toward the closed end—the more oblique it is the better—and should at its base divide one third of the circumference of the tube. This incision will be found to act as a most efficient valve, opening under very slight pressure from within and preventing any regurgitation of pus or of the irrigated fluid. The tied end should be inserted to the very depth of the wound and the free end of the tube left projecting through the dressings; the number of tubes used must depend on the size and character of the wound, but it will generally be found that one, or at the most two, will suffice. In cases of a perforating wound of a limb or of a wound with two openings widely separated a very useful modification is to ligature the tube at its center and cut a valve on each side of the ligature and pointing toward it. This is passed through the wound and the irrigation done from both ends. In this way any fluid that is irrigated into the free ends of the tube must certainly find its way to the very bottom of the wound and from there toward the surface.

Medical Journal of Australia, Sydney

August 18, II, No. 7

22 Desert Hospital at Work. R. Macdonald.—p. 135.
23 Impressions of Country Practice. J. G. W. Hill.—p. 136.
24 Prognosis of Pulmonary Tuberculosis. A. Lewers.—p. 139.

Sei-I-Kwai Medical Journal, Tokyo

May, XXXVI, No. 5

25 Neutralizing Action of Urea on Tetanus Toxin. H. Sewaki and Y. Tagami.—p. 27.

August, No. 8

26 Id. H. Sewaki and Y. Tagami.—p. 71.
27 *Accelerating and Inhibitory Actions of Various Micro-Organisms on Tubercle Bacillus.* H. Sewaki and Y. Tagami.—p. 86.

Archives Médicales Belges, Paris

July, LXX, No. 7, pp. 577-672

28 *Poisoning from Asphyxiating Gases and Its Treatment. A. Colard and P. Spehl.—p. 577.
29 *Repeated Autovaccination in Treatment of Convalescent Typhoid and *Paratyphoid Carriers.* F. Goubau.—p. 590.
30 Total Laryngectomy for Cancer in Soldier of Twenty-Eight; Recovery. C. Sterckmans.—p. 605.
31 Present Status of the Vitamins. P. van Reeth.—p. 615.

28. **Treatment of Poisoning from Asphyxiating Gases.**—Colard and Spehl combine venesection and oxygen in treatment of the effects of poisonous drift and similar gases. The intoxication is of three types: (1) a brutal and subacute asphyxiated condition from massive intoxication, with intense cyanosis, froth on the lips and vomiting of blood, with rapidly fatal outcome; (2) an acute state of asphyxia developing in those who at first did not seem to be severely intoxicated. The generalization of the bronchitic and fine râles indicates the extent of the pulmonary lesions and explains the asphyxia. The intense cyanosis and changes in the pulse and respiration are characteristic; (3) the third type presents the clinical picture of tracheobronchitis from caustic action, characterized by inflammation of the large and small bronchi and of portions of the lungs, but with enough sound tissue left to maintain the aeration of the blood and ward off asphyxia. Men who have been gassed must be kept under close surveillance, especially during the second week on account of these pathologic changes in the mucosa. Bilancioni produced ulceration in the lungs of gassed animals, and several of the clinical cases here described in detail had a febrile period between the eighth and twelfth days. The clinical picture of the second and third types is much the same at first; then the men in the first group develop asphyxia while those of the second group continue merely their tracheobronchitis. When those of the first group get over their asphyxia, then the clinical picture of the two groups becomes similar once more. In both groups, there is liable to be a febrile period in the second week. The effectual treatment was with venesection and prolonged inhalation of oxygen. Venesection was done at once on every asphyxiated man, fully 300 c.c. of blood being drawn at the bend of the elbow, repeated the next day in the severer cases. The oscillometer shows high blood pressure, but still the blackish blood flows slowly, evidently owing to its exaggerated viscosity. A weak pulse, therefore, in serious intoxication does not contraindicate venesection. It should be done promptly and a large amount of blood withdrawn, from 300 to 500 c.c. according to the condition. The beneficial action from inhalation of oxygen was even more pronounced. The effect depends greatly on the method of administration. The lack of benefit, of which some physicians have complained, is probably due to incorrect technic. Some wait too late and give it to the moribund patient; others give the oxygen too fast, emptying the tank too soon. The proper way is to administer it continuously under a moderate pressure, keeping it up for hours or even days, the patient thus breathing constantly an oxygen atmosphere until the alarming symptoms are past. With this technic, this soon occurs. They give an illustrated description of the arrangement with which they realize these desiderata. The oxygen from the tank passes through tubing into a Wulff jar with three necks, and then through a jar with two necks, a Carrel comb tube and stopcock interposed between the jars. The middle neck of the Wulff jar is connected with a rubber bag to equalize the pressure. The oxygen is introduced through a catheter pushed through the nostril into the rhinopharynx. It is held in place with a string fastened to the brow with a strip of adhesive plaster. As the oxygen is turned on, the bubbling in the two-necked jar shows the rapidity of the flow. It may become stopped by mucus obstructing the catheter in the nose. By this arrangement, oxygen can be administered to more than one patient at a time from the same tank. The passage through the water in the two-necked jar cleans the gas, and moistens it, while the dosage can be regulated for each of the patients separately. The amount found most effectual was from 100 to 150 liters of oxygen for the first hour per individual. When the distress was relieved and the cough and respiratory spasms less violent, the inflow was reduced to about 50 liters an hour. This catheter arrangement does not annoy or incommode the patient like masks and mouthpieces, and he gets the peace and quiet he needs. In a few particularly grave cases they supplemented these measures by giving a little digitalis and strychnin. To ward off secondary infection, especially for those with pulmonary complications, they placed the men in special, well ventilated rooms in which the air was kept constantly humidified with eucalyptol spray. All the other gassed men were in vast barracks with movable sides, kept open night and day. The beds were at least 6 feet apart, and the men were kept in bed for a week at least, even in the apparently mildest cases. Instillation in the nostrils of medicated oil, and inhalation of tincture of benzoin and eucalyptus completed the array of measures to ward off further pulmonary complications, but these are all subsidiary to the main thing, the venesection and oxygen. The value of the treatment is shown in the fact that all the men recovered. The rapidly fatal cases did not live to reach this hospital, Cabour. The Carrel comb-tube referred to has four prongs, and a rubber tube can be fitted to each and thus supply four men with the oxygen at once from the one tank.

29. **Repeated Autovaccination in Treatment of Typhoid and Paratyphoid Carriers.**—Goubau tabulates the findings as to persistence of the bacilli in 431 persons of all ages and both sexes who had been vaccinated once against typhoid and 246 unvaccinated. Of this total 677, 14.33 per cent. still harbored the bacilli after apparent recovery from the typhoid or paratyphoid, but the vaccinated got rid of them sooner than the nonvaccinated, although the difference is not very striking in the table giving the details in sixty-seven cases. None of the vaccinated were carriers of typhoid bacilli beyond the seventh month, while they were found up to the sixteenth month in 0.43 per cent. of the unvaccinated. No carriers of paratyphoid A were found after the fifth month or of B after the seventh. Another group of thirty convalescent carriers were treated with autovaccine or a Wright monovalent vaccine, in weekly injections, and the bacilli disappeared completely in two months in all of the twenty-three thus treated during the first

five months after the disease. The details are tabulated in full of each of the thirty cases, and Gouhau remarks that they apparently establish the efficacy of this autovaccine method of curing carriers. The bacilli disappeared from the convalescents given the vaccine treatment much earlier than in those not thus treated. The effect was prompter the shorter the period after defervescence when the autovaccine was commenced. After an interval of five months no appreciable effect was apparent in 43 per cent. of the cases. When the interval had been only two months, six carriers were cured with three injections; three with four and two others with five and six. The precautions are those for vaccine therapy in general. One case warns to be on the alert for latent tuberculosis as there is a possibility that the repeated vaccine injections may have contributed to the development of frank tuberculosis soon after.

Archives de Médecine des Enfants, Paris

August, XX, No. 8, pp. 393-448

32 *Appendicectomy on Twelve-Hours Old Infant. M. Vargas (Barcelona).—p. 393.
33 *Acute Meningitis in the Newborn. Condat.—p. 404.
34 *Meningo-Encephalitis in the Occipital Region. (Ectopie du cervelet.) E. Kirmisson and Tretiakoff.—p. 412.
35 Obliteration of Inferior Vena Cava in Boy of Twelve. J. Comby.—p. 418.
36 *Hemorrhagic Pleurisy and Sarcoma of the Mediastinum. J. Comby.—p. 423.

32. **Appendicectomy on the New-Born.**—Vargas gives an illustrated description of an infant with a gap in the abdominal wall so that some of the viscera escaped. He was able to reduce the extensive hernia and suture the wall. As the appendix presented under his hand, he resected it as is his practice in such circumstances, and clinically normal conditions were promptly restored. The malformation was of the type of periumbilical cutaneous aplasia. This is the fifth case of the kind he has encountered. The first description of it dates from 1557.

33. **Acute Meningitis in the New-Born.**—Condat relates that three cases of this kind were in the hospital in a recent month. It seems that meningitis is not so rare in the newborn as generally assumed, but it escapes recognition as a rule. Even lumbar puncture may fail to clear up the diagnosis. The symptoms are masked by the general infection of which it is a complication. The streptococcus was found in one case, the pneumococcus in the others.

34. **Meningocele in Young Infant.**—The hernia contained part of the cerebellum in the case described, but this was not suspected before the operation. The base of the tumor was cut away and the pedicle ligated. There were no convulsions or twitchings, and the child seemed to be doing well when it succumbed to an intercurrent violent gastro-enteritis the nineteenth day. The ectopic nervous tissue was evidently a kind of neoplasm, an encephaloma. It included the left lobe of the cerebellum. The right lobe was inside the skull, the cerebellum having evidently twisted sideways.

36. **Hemorrhagic Pleurisy.**—Comby reports two cases of hemorrhagic pleurisy in a girl of 16 and child nearly 3. The particulars of the cases closely resemble two recently published by G. Guidi. They teach that when a pleural effusion is found hemorrhagic, the chances are that malignant disease is already installed in the mediastinum, either in the pleura, lung or anterior mediastinum. In one of Comby's cases the sarcoma had started in the thymus. In all the four cases the onset was similar to that of serofibrinous pleurisy. But soon that half of the chest began to bulge, with exaggerated collateral circulation. Tapping gives only brief relief when the general and local symptoms become aggravated, but the hemorrhagic tint warns of sarcoma.

Paris Médical

August 25, VII, No. 34, pp. 161-176

37 *Anaphylaxis to Quinin. J. Héran and F. Saint-Girons.—p. 161.
38 *Hypnotic Suggestion for the Wounded. P. P. Podiapolsky.—p. 165.
39 Wounds of the Spleen. J. Fiolle.—p. 170.
40 Modification of Haret-Keating-Hart Method for Localization of Projectiles. A. Badolle.—p. 173.

37. **Case of Anaphylaxis to Quinin and its Cure.**—The young soldier had contracted malaria at Saloniki but was unable to take quinin as it induced vomiting, pruritus, urticaria, colic, dyspnea, distress and lower blood pressure. This tendency to anaphylaxis was overcome by giving him an hour or an hour and a half before the dose an anti-anaphylactic dose of 0.005 gm. quinin sulphate and 0.5 gm. sodium bicarbonate. After this he could take rapidly increasing doses of quinin without any manifestations of anaphylaxis. The case recalls Pagniez' patient whose intolerance for albumin in his food was overcome by his taking a dose of 0.5 gm. peptone one hour before each meal. Quinin, therefore, must now be added to the list of substances which induce anaphylaxis under certain conditions. The case teaches further that in case of drug eruptions and similar disturbances, before renouncing the use of the drug in question it might be well to try this anti-anaphylactic method of a preliminary small amount—the phylactic dose—before the real dose.

38. **Hypnosis in the Field Hospital.**—Podiapolsky writes from Saratov in Russia to call attention to the way in which he has sometimes been able to free the wounded from suffering by hypnotic suggestion that there was no pain or by throwing them into a hypnotic sleep. He describes in detail a number of peculiarly distressing cases in which the immediate relief was most welcome. In war conditions he has found that the men responded with exceptional facility to hypnosis; he found only about 2 per cent. quite refractory. In conclusion he exclaims, "Why give chloroform to subjects who at a word drop off into an artificial deep slumber, which can be counted on in about 17 per cent. of the cases." Even the first degrees of hypnosis permit operations with much less of the general anesthetic than would otherwise be necessary. He has found it useful for the wounded of all the nationalities that he has encountered, Slavs, Teutons and Italians. He does not advise the hypnosis for major operations but mainly for the sensory crises of psychic origin, such as the pain felt apparently in a limb after it has been amputated. A single hypnotic sitting may cure completely distressing pains of this nature. Podiapolsky's polyglot environment caused trouble sometimes, as he did not always know the word for "wake up" in the patient's own tongue. Now he makes sure of this before attempting the hypnosis.

Presse Médicale, Paris

August 2, XXV, No. 43, pp. 441-448

41 *Elimination of Quinin by the Urine. E. Jeanselme and Dalimier.—p. 441.
42 *Pathogenesis and Evolution of Diphtheria. J. Danysz.—p. 442.
43 *The Oculocardiac Reflex in the Wounded. J. Gautrelet.—p. 443.
44 Arthrodesis of the Foot. A. Broca.—p. 444.

August 6, No. 44, pp. 449-464

45 *Contracture of the Fingers with Traumatic Injury of the Nerves of the Arm. (Les griffes.) H. Claude and R. Dumas.—p. 449.
46 *Soldiers with Heart Disease. (Les cardiaques du front en 1917.) C. Aubertin.—p. 451.
47 *What Can be Expected from Radiotherapy for War Wounds Involving Nerves. H. Bordier and M. Gérard.—p. 453.
48 Small Epidemic of Amebiasis. A. Fuchs and H. Bouchet.—p. 455.
49 Danger of Incomplete Emergency Operations. M. Lagoutte and J. Le Grand.—p. 455.
50 Technic for Vaccine Therapy of Certain Forms of Chronic Intestinal Disease. A. Berthelot.—p. 458.

41. **Elimination of Quinin by the Urine.**—The tabulated findings show that quinin has to be administered daily to keep the patient under its continuous influence, by whatever route it is given with the exception of the intramuscular. With this route, administration every second day suffices.

42. **Diphtheria.**—Danysz presents theoretical data testifying to the fundamental difference between the evolution of diphtheria and of the majority of other infectious diseases. It seems to be a local infectious disease caused by a colloidal, soluble, directly toxic antigen with a special affinity for tissues of ectodermic origin. There is no incubation. The normal intracellular antibody can fasten the antigen and form compounds with it. The resulting intracellular reactions are immunizing if the quantities of antigen and of antibodies balance each other. They become pathogenic when the antigen is in excess. The intravascular reactions consist in neutral compounds soluble and able to be directly assimilated or eliminated if the antigen and antibodies (antitoxin)

balance each other, or if the latter are in excess. Diphtheria never induces anaphylactic hypersusceptibility.

43. **The Oculocardiac Reflex in the Wounded.**—Gautrelet emphasizes the peculiar intensity and constancy of the oculocardiac reflex in most of the wounded when the test is applied several months later. It is exceptionally intense in the men with reflex contracture. The only exceptions are the cases of exclusively bone injuries. These findings suggest that the nervous system is unbalanced, the autonomic nervous system gaining in influence.

45. **Contracture of the Fingers.**—Claude and Dumas give an illustrated description of the various types of claw-fingers that develop after the different types of injury of the nerves in the arm. They must not be regarded as inevitable or necessarily permanent, but should be warded off or overcome by massage of the muscular masses of the forearm, especially of the flexor group, the massage repeated twice a day, at least, under the directions of the neurologist and surgeon. Each finger should be mobilized separately, to the extreme extension possible, repeating this several times a day. In addition to these passive exercises, which will aid in overcoming a tendency to stiff joints, these measures are supplemented by regular immobilization of the fingers in hyperextension on a board, at night only, unless retraction is menacing, in which case the hyperextension immobilization should be kept up the greater part of the day as well as at night. When these measures are applied systematically and efficiently from the first, he says, that day will witness the disappearance of claw-fingers in all cases except with absolutely irremediable section of the nerve.

46. **Heart Disease on the Firing Line.**—Aubertin states that during the three years of the war the men with heart disease have been gradually sifted out and sent back to him as chief of a service for heart disease. Many with mild functional disturbances promptly recuperated and returned to their post at the front. Those with organic trouble have been apportioned to light duty or dismissed from the ranks altogether. In a recent series of "cardiacs" thus received at his service, 9 per cent. were sound and had merely managed to convince the army doctor that something was wrong with their heart. In 12 per cent. the heart symptoms were traceable to incipient tuberculosis, alcoholism, anemia in the young and fatigue in the older men, without actual heart disease. With actual organic trouble he found only two cases of thyroid origin among the thirty-two men with tachycardia and one case of paroxysmal tachycardia. Extrasystolic arrhythmia is generally labeled myocarditis, although his examination always failed to disclose anything abnormal in the functioning of the heart. This type of arrhythmia, he remarks, frightens the unwarned physician more than it frightens the patient. In short, he declares in conclusion, there still are some men at the front with organic heart disease, but nearly all have some slight aortic systolic murmur which escapes detection except at times of unusual physical stress, at which time attacks of tachycardia develop. The soldiers with valvular disease have nearly all been sifted out by this time.

47. **Radiotherapy for Wounds of Nerves.**—Bordier and Gérard report twenty-five cases to confirm the great benefit liable to follow exposures to the Roentgen rays after war injury of nerves. The response to electric stimulation returns to normal when the exposures are given early. They advise surgical intervention when the reaction of degeneration is complete. Then radiotherapy applied at once may promptly restore normal conditions. They are hopeful that it may be possible by this means to ward off paralysis and other infirmities consecutive to severe injury of nerves. But to accomplish this, the men with one or more nerves which fail to respond to electric stimulation must be kept in the hospital long enough for the different measures applied to realize their full and complete therapeutic effect.

Progrès Médical, Paris

August 11, XXXII, No. 32, pp. 265-272

51 *Reaction to Pinching of Muscle over Pleuropulmonary Tuberculous Lesion. (La réaction myotonique du trapèze dans la tuberculose pleuropulmonaire.) M. Loeper and H. Codet.—p. 265.
52 *Simple Contusion of the Knee. A. Chalier.—p. 266.
53 Symptoms with Lesions of the Cauda Equina. J. Lhermitte.—p. 267.
54 *Occupational Training of War Cripples. A. Marie and A. Rodiet.—p. 269.

51. **Reaction to Pinching of Muscle Over Tuberculous Pleuropulmonary Lesion.**—Loeper prefers to call this the myotonic reaction, as elicited by pinching the trapezius. Whatever the response, it is normally alike on both sides, and when it is exaggerated on one side only it points to irritation of the muscle fibers from some cause. In his experience with 300 tuberculous patients examined, the myotonic reaction was more accentuated on the side of the active pleuropulmonary lesion. Congestion of the apex was always accompanied by exaggeration of the reflex, while it was always reduced with pleurisy without effusion. Of course sclerous lesions and other torpid trouble are not accompanied by the myotonic reaction, but it may be found an aid in locating a pulmonary lesion, in estimating its depth beneath the surface, and whether it is active or not.

52. **Contusion of the Knee.**—Chalier calls attention to two mistakes constantly made by army surgeons, the undue clinical importance attributed to simple slight hydrarthrosis, and the inadequate treatment given sprain and hemarthrosis. The latter requires immediate and absolute immobilization in bed for several days, with a cotton compressing dressing. If the effusion persists or increases, by the fourth or fifth day it should be evacuated by puncture and the knee should be immobilized in plaster. One puncture is generally enough, and massage should be applied, still keeping the man in bed, with automassage, active contraction of the quadriceps, raising and lowering the leg. By the eighth or tenth day the man can be allowed to walk a little, the knee still in the plaster ring until the fifteenth day. After this the knee can be gradually used, and the man is ready to resume his active service in about six weeks from his trauma.

54. **Occupational Training of War Cripples.**—Marie and Rodiet discuss a bill that has passed the lower house and is now before the French senate. It is based on the two principles of the obligation to ensure professional reeducation of the wounded and mutilated soldiers, and that this should not encroach on their pension. By ensuring assistance to all disabled soldiers who are yet capable of steady occupation, the law thus provides for the most numerous category of the mutilated. It does not apply, however, to the severely crippled or to those incapable of sustained wage-earning occupation who will find their place in the soldiers' homes, and those unable to benefit sufficiently by training after it has been given a thorough trial. Marie and Rodiet urge that the present bill should be amplified to include special provision for the "mentally disabled," the neurasthenic, the depressed, the confused, and those disabled by derangement of the nerve centers. Most of them have a home and a family to return to. But those who have no home, what is to become of them? Some provision should be made for them instead of keeping them on indefinitely in the hospitals. Their suggestion is that the nervously and mentally disabled of this type should be boarded out in families in country districts. This method of assistance offers a more cheerful and a saner life than hospital existence in towns. It conforms better to the aspirations of the individual and to mental and physical hygiene. It also spares the public funds the enormous expense of hospital care for so many with grave chronic affections and those disabled beyond steady wage-earning capacity. This plan of boarding out in the country the chronic invalids was proposed before the war by P. Fleurot to relieve the overcrowded Paris hospitals.

This method of boarding invalids out in country families has long proved its usefulness in the other countries of Europe, and in France it has been successfully applied since 1892 for a large number of the chronic insane who are not getting any further benefit from hospital treatment. The board in charge of the war cripples, provided for in the bill, could assemble these mentally disabled in certain villages or small towns, letting them choose the family with which they wish to make their home. The board paid must not encroach on the man's pension. These disabled might be capable of some light work, possibly home work. Bergonié has recently reported astonishingly fine results obtained in the correction of motor sequels of war wounds by graduated farm labor. The authorities in consequence are already organizing small agricultural sanatoriums in connection with the institutes for physiotherapy. By extending this system, the mentally and nervously disabled would find homes and excellent conditions for restoration to normal.

Revue Médicale de la Suisse Romande, Geneva

April, XXXVII, No. 4, pp. 173-252

55 Mycelic Concretions in Lacrymal Canals. L. G. Welt.—p. 173.
56 Benefit from Arsenobenzol in Case of Echinococcus Disease of Peritoneum and Liver. H. Curchod.—p. 186.
57 Surgery at Swiss Base Hospital. H. Vulliet.—p. 195.
58 Management of Calculus in Child's Ureter. C. G. Cumiston.—p. 212.
59 *The Iodin Urine Reaction. A. Thury.—p. 215.
60 Large Tuberculoma of the Mesentery in Child of Eight. C. M. Du Pan.—p. 222.
61 Multiple Paralysis of Cranial Nerves from "Shell Wind." D. Pachantoni.—p. 226.

August, No. 8, pp. 473-524

62 *Operations for Hernia in Children and the Remote Results. J. Brossy.—p. 473. To be continued.
63 *Indicanemia as Symptom of Insufficiency of the Kidneys. J. Tchertkoff.—p. 487.
64 *Phosphaturia as Cause of Hematuria. C. Perrier.—p. 496.
65 Favus from Spontaneous Inoculation with Achorion Quinckeanum; Two Cases. C. Du Bois.—p. 506.

59. **Iodin Urine Reaction.**—Thury reports that the findings with Petzetakis' urine iodin reaction were so contradictory in her experience that it does not seem to have any value for either diagnosis or prognosis.

62. **Operations for Hernia in Children.**—Brossy here presents the findings nine years or more after an operation for hernia on 287 children. He states that nine died soon after the operation among the 642 children treated for hernia since 1888, but death in one instance was of the thymus-death variety and in another was the result of iodoform intoxication. Children liable to thymus death should not have any operation done that can possibly be deferred. In four other cases the children succumbed to infection probably acquired in the hospital. These cases show that the sojourn in the hospital is liable to entail grave consequences, and hence an operation should not be advised lightly for children; not without absolute necessity or special quarters, with one or at most two beds in the room, and no visitors allowed. The other three deaths had probably no connection with the operation. Among the 287 with an interval of at least nine years since the operation, seventeen have died during this period, including nine that were under 2 years old at the time. Two years seems to be the lowest safe limit for these operations. The article is to be continued.

63. **Indicanemia as Symptom of Renal Insufficiency.**—Tchertkoff expatiates on the importance of indican in the blood as a sign of grave incompetency on the part of the kidneys. The technic he describes for estimation of the indicanemia reveals it only when it is within a pathologic range: to 8 or 10 c.c. of serum (obtained fasting by wet cupping or puncture of a vein), he adds an equal quantity of 20 per cent. trichloracetic acid, and filters. Then, to 10 c.c. of the filtrate he adds an equal quantity of concentrated hydrochloric acid containing 5 gm. of ferric chlorid to the liter. The whole is agitated, and then 3 c.c. of chloroform is added. After having agitated it several times in the course of fifteen minutes, he examines for the color reaction. The chloroform changes to a light or dark blue according to the proportion of indican in the serum. If there is no indican, the chloroform has no color. If there is iodin in the serum, the chloroform turns pink or a pinkish violet. This technic is reliable also for detection of iodin in the serum, but as this may interfere with the indican reaction, no iodin should be given the patient before the test. In his examination of 300 serums, indicanemia was invariably found when the azotemia reached nearly 1.5 gm. to the liter, but it sometimes disappeared before the latter—a favorable sign. It persists to the end in the fatal cases. Experimental research confirmed these clinical findings. There may be indicanemia with slight uremia; but the prognosis should be based on the persistence of the former. He thinks there is no need for quantitative estimation of the indican; the fact that it is within pathologic range is enough. The range shown by the technic described is about 2.5 mg. Any amounts above this show merely that the production of indican is large; they reveal nothing beyond the fact of renal incompetency already shown by the 2.5 mg. As the kidneys fail to allow the passage of any of the substances produced in or introduced into the organism, he remarks that "uremia" or even "urinemia" is a better term than "azotemia." Whatever we term it, the condition calls for a diet which can be oxidized without waste, little albuminoids and little salts, while the caloric demands should be reduced to the minimum. Indicanemia with chronic nephritis indicates a fatal outcome in a few months or weeks.

64. **Hematuria with Phosphaturia.**—In the four cases reported by Perrier there was slight but frequent hematuria, sometimes almost continuous, with periods of exacerbation, either spontaneous or following pain in the kidney or fatigue. The general health was not impaired and micturition was normal. The urine, however, constantly contained a mineral sediment, phosphates alone or associated with urates and uric acid. There was no tendency to hemophilia, tuberculosis, lithiasis or tumors. The patients were two young men, a woman of 26 and a man of 38. He prescribed hydrochloric acid and in the one case in which his directions were followed, the urine became limpid and there have been no further disturbances. The phosphaturia is unmistakably a factor, but probably the kidneys are exceptionally sensitive.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 18, XLVII, No. 33, pp. 1057-1088

66 *Clinical Study of Cerebellar Cysts. M. Düring.—p. 1057.
67 * Experiences with Vaccination against Typhoid. F. Oeri.—p. 1067.
68 Medical Certificates and the Honorarium. (Zum Krankenschein-Wesen.) C. Bührer.—p. 1072.

66. **Cyst in the Cerebellum.**—Düring's patient was a woman of 32, with three healthy children. She had been healthy except complaining of pains in the back of the neck since childhood. During the last four or five months there had been much headache, dizziness and vomiting and a brain tumor was suspected in the left cerebellum. The woman succumbed to respiratory paralysis while being prepared for the operation at the fifth month. A cyst as large as an egg was found in the left cerebellum, with a small glioma projecting into it, relics of a larger tumor, possibly. He discusses the symptoms in this case, particularly those for which the disturbance in the adjoining pons and oblongata were responsible. These remote deficit symptoms are particularly important for differentiation of intracranial tumors. The total paralysis of the left vestibular nerve was accompanied by total left facial paralysis, but the fact that the hypoglossal escaped excluded hemiplegia from a focus in the frontal lobe or anterior segment of the internal capsule. The data of this case sustain the assumption that paresis of the extremities has a cerebellar basis. Sensory disturbances are rare with tumors in the posterior cranial fossa. Puncture of the brain seems to be the only safe means to differentiate between cysts and tumors. It has given good therapeutic results, also, in the hands of some. Palliative puncture of the ventricle may be indicated in certain cases, Düring adds, puncturing at the point where pressure is highest. He calls attention further to the very high pressure noted in the ventricle on the opposite side in his case. Internal hydrocephalus is largely occipital as there is less white substance here to interfere. The occipital lobe stands puncture well.

Gazzetta degli Ospedali e delle Cliniche, Milan

July 22, XXXVIII, No. 58, pp. 809-823

69 Multiple Factors in Trench Foot. U. Tassone.—p. 811.

July 26, No. 59, pp. 825-832

70 Splint with Elastic Traction. (Ferula a trazione elastica.) M. Zanini.—p. 825.

July 29, No. 60, pp. 833-848

71 *Induced Linear Goose Flesh as Sign of Hyperexcitability of Sympathetic System. N. Pende.—p. 834.

71. **Circumscribed Goose-Flesh or Trichographism.**—Pende calls attention to a form of dermographism which indicates hyperexcitability on the part of the sympathetic nervous system. Like the white or red line of ordinary dermographism it is induced by marking on the skin with a blunt point, a line of goose-flesh minute papules following the mark. He has coined the terms trichotony and trichographism to express this induced localized contraction of the arrectores pilorum, a circumscribed localized cutis anserina or goose-flesh.

Policlinico, Rome

August 26, XXIV, No. 35, pp. 1061-1088

72 Unusual Cases and Experiences with Syphilis. C. Verdozzi.—p. 1061. To be continued.
73 Gunshot Wounds of the Limbs. V. Calo.—p. 1067.
74 Increased Infant Mortality during the War and Means to Combat it, especially in Foundling Asylums. (Riforma dei brefotrofii.) M. Flamini.—p. 1075.

Riforma Medica, Naples

August 18, XXXIII, No. 33, pp. 809-828

75 Treatment of Complications outside the Joint with War Wounds of the Knee. G. Razzaboni.—p. 810.
76 The Declining Birth Rate. A. Botti.—p. 824.

Rivista Critica di Clinica Medica, Florence

August 18, XVIII, No. 33, pp. 325-332

77 *Residual Chronic Suprarenal Insufficiency Left After Epidemic Jaundice. G. A. Notari. Commenced in No. 31, p. 309.

77. **Chronic Suprarenal Insufficiency after Epidemic Jaundice.**—Notari describes six new cases of this type, giving the findings in detail from day to day. The pigmentation resembled that of Addison's disease and the weakness was extreme; in one case there were two periods of acute suprarenal insufficiency. The exaggerated oculocardiac reflex and the organic reactions to atropin and pilocarpin show that in these cases the sympathetic hypotony seems to be compensated for by the hypertony of the autonomic system. It seems to be evident that next to the liver and kidneys the suprarenals suffer most from the spirochete infection. The spirochetes accumulate in them in enormous numbers. In the cases described the blood pressure was not abnormally low or but very little below normal and epinephrin depressed instead of raising it or did not modify it at all, or only slightly. There was no epinephrin glycosuria. The data reviewed confirm, he says, Monti's statement that besides the direct action of the spirochetes on the suprarenals, they suffer additionally, indirectly, from the alterations observed at necropsy in such cases in the solar plexus.

Prensa Medica Argentina, Buenos Aires

July 20, IV, No. 5, pp. 53-64

78 Case of Roentgen Ray Cancer. A. H. Roffo.—p. 53.
79 Inefficacy of Ready Made Vaccines in Puerperal Septicemia and Endometritis. M. T. F. de Gaudino.—p. 57.

Semana Medica, Buenos Aires

June 21, XXIV, No. 25, pp. 727-766

80 *Retention of Bile. G. Segura.—p. 727.
81 Partial Colectomy on Still Filled Megacolon. A. Ceballos.—p. 735.
82 Memoirs of a Hygienist. E. R. Coni.—p. 737. Continuation.
83 The Specific Factors in Coagulation. A. Bergman.—p. 740.
84 Mechanism of Ileus in Parturients. E. Mazzini.—p. 747.

80. **Retention of Bile.**—Segura reports eight cases to show the difficulty of differentiation in certain cases of jaundice. They emphasize that surgical treatment is imperative when jaundice has lasted for two months at farthest. The laparotomy may reveal a benign curable process when everything seems to indicate malignant disease. The retention of bile injures the liver and is liable to induce a hemorrhagic diathesis. This proved fatal in two of the cases reported in which the operation came too late, the whole trouble being merely from an echinococcus cyst in the liver. In another case the liver opened into the bile passages, and there was transient obstruction at intervals, probably from expulsion of daughter cysts. As these were finally passed along, the obstruction was only temporary and there was no tendency to hemorrhages. Even when the laparotomy discloses malignant disease, gastro-enterostomy may permit long survival as the retention of bile otherwise is liable to prove fatal before the patient succumbs to the cachexia. One of his patients was a man of 23 with primary cancer of the biliary passages, inoperable when first seen. There was no history or trace of gallstones in this case. Necropsy in the case of a man of 58 showed cancer developed in a duodenal ulcer. The ulcer symptoms had been unmistakable for two or three months and then jaundice developed within a few days, evidently from invasion of the bile duct by the carcinoma. In another case a hard drinker developed suddenly pain in the liver, and jaundice, but in the course of six weeks of rest and careful dieting the jaundice had almost disappeared and the man of 60 had gained several pounds in weight. Catarrhal jaundice was the diagnosis, but the jaundice grew more intense by the end of three weeks, with subcutaneous extravasations of blood and ascites. Necropsy revealed a primary nodular cancer in the liver. In a case of Hanot's cirrhosis of the liver there was no jaundice or fever for a year and a half, but then jaundice gradually developed with intense pruritus and a loss of over 40 pounds in weight. The stools were absolutely clay colored, and a passage for the bile was made by joining the gallbladder and duodenum. The patient succumbed to pneumonia not long after. Another man of 33, with drinking habits had long had frequent digestive disturbances, ascribed to the stomach, when a very severe attack of indigestion followed eating five melons. The bowels did not move, even under repeated doses of castor oil, and the fifteenth day jaundice developed. The liver could be palpated at the fifth rib but it was not tender through the interspaces; the lower margin was slightly tender. He improved in the hospital, gaining over 11 pounds in weight in two months and returned to work, but the liver increased in size and ascites required tapping. The diagnosis wavered between four different liver diseases after the assumption of catarrhal jaundice had been dropped, but necropsy, eighteen months after the first sign of jaundice, disclosed cancer of the ampulla of Vater.

Siglo Medico, Madrid

July 28, LXIV, No. 3320, pp. 545-564

85 Symptomatic Value of the Drawings of the Insane. R. P. Valdes.—p. 546. To be continued.
86 Primary Acute Congestion of the Lung. B. Gil y Ortega.—p. 549.

Russkiy Vrach, Petrograd

XVI, No. 14, pp. 313-336

87 *Operative Treatment of Tumors in the Bladder. S. P. Fedoroff.—p. 313.
88 Changes Proposed in the Curriculum of the Medical Schools of Russia. N. I. Ratchinsky.—p. 319.
89 Ulcer in the Bladder Induced by Colon Bacilli. G. I. Baradulin.—p. 323.
90 Agglutination after Vaccination against Typhoid. V. V. Pezharskaya.—p. 324. Conclusion.
91 Comparative Typhoid Morbidity in the Vaccinated and the Nonvaccinated. P. N. Triudin.—p. 329.

87. **Tumors in the Bladder.**—The title of Fedoroff's article is "My Views on the Modern Treatment of Tumors in the Bladder," as he is convinced that when there is a suspicion of malignant disease or the tumors are multiple or are located in what he calls the neck of the bladder, the usual treatment does not guarantee against recurrence. His experience with 165 operative cases of bladder tumor and review of the literature have shown that a single tumor can be removed by an intravesical intervention without fear of recurrence. But recurrence is the rule after an intravesical operation for multiple tumors or cancer. He knows of only one case on record (Pawlik) of survival for fourteen years without recurrence. In his own series, 20 per cent. of the 165 patients have had no recurrence during the two and a half to thirteen years since operative treatment, and nothing is known of the ultimate outcome of 50 per cent. The remaining 30 per cent. had recurrence of the tumor within two years except in two cases in which the interval was three years and one in which it was five. Fedoroff presents further arguments to prove the necessity for extending the indications for removing the bladder and transplanting the ureters at an early stage of malignant disease and with multiple tumors. The otherwise

doomed patients are thus restored to comparative clinical health and their sufferings are terminated at one stroke. He reports a few cases in detail to show the value of this dual intervention. One physician of 39 had had occasional hematuria since the age of 17, and three suprapubic operations and one intravesical had been done to clear the bladder of recurring multiple papillomas in turn by Guyon, Nitze, Casper and Bazy. Pains and tenesmus were finally almost continuous, requiring up to 0.4 gm. morphin daily, and a suprapubic fistula into the bladder complicated matters. Then, in March, 1911, Fedoroff transplanted both ureters into the lower sigmoid flexure, and, in April, shelled out the bladder with part of the prostate. The relief from pain after the transplanting of the ureters was like magic. In June the physician was able to resume his practice as if raised from the dead. When the bladder was removed the microscope showed traces of cancer in the tumor but it had not invaded the walls of the bladder or lymphatics. The bladder seems to be peculiar in this respect. But still, two and a half years later, other papillomas and a cyst developed in the small pelvis. Evidently the pelvis had been inoculated with tumor cells during the removal of the fistulous bladder. Another serious feature of the case is that the otherwise fairly healthy man has had several attacks of pyelitis during the last five years although he has been able to keep up his practice and has felt well otherwise. Fedoroff remarks that we must not forget that the kidneys in such cases must be already suffering from obstruction of the outlets by pressure from the tumors.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 7, II, No. 1, pp. 1-128

92 *History of a Hospital through Six Centuries. D. Schoute.—p. 3.

July 14, No. 2, pp. 129-204

93 *Chronic Headache from Loss of Muscular Balance between the Eyes. J. P. van der Brugh.—p. 132.
94 Unusual Type of Favus Traced to Achorion Crateriforme. W. L. L. Carol.—p. 140.
95 White or Whole Grain Bread. G. A. Prins.—p. 149:
96 *Suspension of Pulse and Respiration at Onset of Epileptic Seizures W. Kouwenaar.—p. 151.
in Man with Complete Heart Block.
97 Participation of the Spinal Cord in Coordination of the Movements of Running. G. Van Rijnberk.—p. 156.

92. **History of Modern Hospital in Holland, Founded in 1308.**—Schoute has compiled from the archives of the hospital at Middelburg and from other local sources a valuable contribution to the history of medicine in the fourteenth century and during the centuries since. A number of illustrations show the ancient building and its administrators. The actual founder is not known, but a deed showing a bequest to the hospital from a widow is on record, dated 1308. The hospital archives were kept with minute record of details, and the financial ups and downs of the hospital reflect the political events of the various centuries. The directions for greater economy in administration at various periods are interesting. During the first centuries of its existence the archives show that the hospital combined the functions of an asylum for the aged, for foundlings and orphans, an inn for transients, charity work in general, and church, school and political headquarters, in addition to its regular hospital work. The very name for hospital in the Netherlands language, *Gasthuis*, "guest house," suggests its original manifold uses. The earliest picture of St. Barbara's dates from 1696. It required a very active and energetic campaign by two local physicians, preaching the necessity for ventilation, pure water, etc., to bring about the destruction of the antiquated building. Their pamphlet published in 1857 preaching modern hygiene told, among other records, of their own school days in the old building, the dark rooms, the ink freezing. Their campaign was reenforced by a smallpox epidemic spreading from the hospital, and the old building was demolished in 1866, but its records were preserved and the *Leggerboeks* dating from 1604 and 1687, with the rules and regulations for the administration of the hospital.

93. **Chronic Headache as a Manifestation of Asthenopia.**—Van der Brugh remarks that so many factors are liable to bring on headache, that no one physician is able to master all the specialist methods of investigation of its etiology. He devotes this communication to the habitual headache resulting from disturbance in the motor apparatus of the eyes, especially a loss of balance between the external eye muscles. He has had seventy-one cases of the kind in less than three years, and has completely cured fifty-eight with prisms. The general practitioner, the laryngologist, rhinologist and otologist, who are the ones generally consulted on account of chronic headache, can differentiate it as a case of heterophoria by bandaging one of the patient's eyes and letting him go around otherwise as usual. If the headache improves in the course of a few days under the use of the bandage; then some loss of balance is the cause of it, in all probability, and this can be readily corrected with prisms. There is a special group of sufferers in this class, he says, those who come home from the theater, lecture, concert or church with a raging headache. He has found esophoria in all such cases and with the aid of correcting prisms the tendency to headache disappeared. He describes the other types of heterophoria, and warns that girls and young women do not like to wear glasses, but when they discard their prisms the headache returns. Still more convincing is the experience that those with hypermetropia, besides the esophoria, still have their headache persist when glasses to correct the former, but not the latter, are fitted. Not until they are supplied with prisms do they lose their headaches. A special characteristic of headache from esophoria and hyperphoria is that the tendency to headache subsides in the dark and at night. Such patients usually relate that they have had the headaches a long time and have been treated for them by the family physician for weeks, months or years, without relief. They have been repeatedly examined by nerve and nose specialists but no cause for the headache could be found. They finally gave up hope and resigned themselves to their suffering, so that the prompt and complete cure when fitted with proper glasses is an overwhelming surprise. The loss of balance to which he refers used to be called latent strabismus, but time has shown that this term is incorrect. He describes a typical case in a boy of 7, showing the cure of the headache after he had been fitted with prisms, its return when he broke his glasses, and its banishing anew with the repaired glasses, while the general health improved remarkably when relieved from the depressing headaches.

96. ***Heart Block with Epilepsy.***—The elderly man in question had had complete heart block for the last five years. From his thirtieth year he had attacks resembling epileptic seizures. They began with suspension of heart action and respiration. In the attacks while under observation, the pulse stopped abruptly for 105 seconds and possibly longer, while the respiration was suspended for two and three-quarters minutes. Kouwenaar discusses whether this combination of epileptic seizures and heart block is casual or there is some causal relation between them. The convulsions were bilateral, symmetrical tonic-clonic cramps with episthotonus. They bore a suggestion of Hughlings Jackson's "cerebellar attitude." This is instructive, in connection with the bulbar theory of the causes of convulsions in persons with heart block as *claudicatio intermittens* of the bulbar vessels.

Ugeskrift for Laeger, Copenhagen

April 5, LXXIX, No. 14, pp. 515-558

98 *Roentgen Treatment of Cancer. S. Nordentoft.—p. 515.
99 Case of Cerebral Syphilis. C. Gram.—p. 522.
100 Case of Keratomalacia in an Adult. Saunte.—p. 525.
101 *Foods and Dietaries. (Ernæringsspørgsmaalet.) M. Hindhede. p. 528.

98. **Roentgen Treatment of Cancer.**—In this article Nordentoft describes his experiences with roentgenotherapy of mammary cancer in particular, with the ultimate outcome. The fact that the neoplasm subsides under the influence of the Roentgen rays testifies to its malignant nature as other growths do not seem to be influenced by them.

101. **Foods and Dietaries.**—Hindhede's study of the basal protein requirement in health was summarized from the other instalments (The Journal, June 16, 1917, p. 1880). This belated number completes his article, giving the tabulated details of some of the extensive diet experiments mentioned in the abstract.

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RECENT BIOCHEMICAL INVESTIGATIONS ON BLOOD AND URINE

THEIR BEARING ON CLINICAL AND EXPERIMENTAL MEDICINE *

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It is generally recognized that progress in the development of any experimental science is more often due to the discovery of new methods than to new and more ingenious applications of old ones.

An unending procession of new remedies and new procedures moves across the field of clinical medicine. The wide attention bestowed on Abderhalden's pregnancy test may be cited as a specific illustration of the eagerness with which the medical profession is waiting for new methods. Brugsch's new nitric acid test for syphilis is another illustration. This test will doubtless prove even more alluring to those who have opportunity to try it; for, whereas the Abderhalden test was complicated and admittedly full of pitfalls, this new test for syphilis seems almost ideal in its simplicity. Its lack of "rhyme or reason" will not deter many from trying it.

In the science of biochemistry, too, we have had a constant succession of new methods, and a very important phase of the biochemical research of today is still the development of analytic technic. In the last few years there have been very great changes in the methods used for the analysis of urine, while the advancement in the field of blood analysis has been ever more remarkable.

The foremost characteristic of the successful modern analytic method is speed. With reference to the value of time, the biochemical investigator of today is no less keen than are the leaders in modern industry. Many of the older methods in use, say fifteen years ago, as, for example, Salkowski's method for uric acid, the Mörner-Sjöquist method for urea, or the Schlösing method for ammonia, were accurate enough, but they were slow, and they did not encourage the application of chemical methods to the study of clinical problems. When a physician had to wait four days before he could learn how much ammonia a given urine contained, he did not bother himself very often about determinations of ammonia. And, as a matter of fact, this good old method for the determination of ammonia was so little used that investigators gradually forgot how the method must be employed in order to yield correct results.

Today any analytic method in urine analysis which cannot be finished within less than two hours stands in need of further revision. Most of the common determinations in urine and blood will become from fifteen to thirty minute methods for single determinations, and also several determinations will be made with little extra expenditure of time.

Almost every material reduction in the time and labor required for a given determination is followed by an increase in the number of investigators who make researches based on that determination. But it is only when we come down to the very shortest of biochemical methods that they begin to appeal to clinicians, and it is, I think, no small triumph for the modern technic that clinicians have begun to compete with laboratory specialists in the fields of research suggested by these new methods.

A considerable and constantly growing number of American physicians now possess laboratories in which chemical determinations are made. It is difficult as yet to appraise the probable value of this kind of work contributed by clinicians. A large proportion are busy practitioners who have considered their own time too valuable to permit them to acquire any personal mastery over the methods. Hence they hire technicians to do the work without themselves being competent to judge of the quality of the work. The net gain to science from such work must be distinctly problematic.

There is a legitimate and important use for technical assistants in the innumerable little laboratories springing up in connection with private and with hospital practice of medicine, but it seems to me extremely important that this use should conform to some reasonably honest standard of responsibility. The physician should know at least as well as his technician each and every kind of determination that the technician makes for him. Every method goes wrong now and then, and the physician who is as helpless as is the technician when something does seem to be wrong has but meager qualification for the work he is trying to do.

The current misuse of technicians does impair somewhat the credibility of laboratory observations recorded by clinicians, but this represents presumably only a passing phase, and it does not obscure the fact that many clinicians are keen and alert for every new chemical method which is sufficiently practical for their needs. It is unfortunate that the laboratory expert and the competent clinician cannot be united in one person. It is unfortunate that methods must be simple and easy, as well as quick, before they can find any very widespread and sound application within the medical profession. The modern methods are wonders in quickness in comparison with the old ones, and

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they are not very complicated; but no man knows them who does not know how to check up his own results by working against theoretical figures.

A second characteristic of modern analytic technic, as distinguished from the old, is the tendency to make the methods microchemical. Formerly a full twenty-four hour quantity of urine was scarcely large enough to permit a complete analysis. Today 10 c.c. of urine is abundant for a determination of all the more common nitrogenous constituents. We still demand twenty-four hour samples of urine, and have gone on the assumption that we must have them to secure a satisfactory picture of the waste products; but we do not need them for the analyses. Indeed, many modern researches are based on analyses of urine representing periods much shorter than twenty-four hours.

The importance of being able to make quantitative studies on the basis of less than twenty-four hour urines is shown in the recent communications by Dr. Denis on creatin. We still do not know for certain some things which we must find out about the origin of this product. We know that the muscles contain creatin, or its precursor, and that in the urine we find normally (except in children) a great deal of creatinin, but only traces of creatin. It now turns out that these traces are not excreted, as is creatinin, at a substantially uniform rate from hour to hour. On the contrary, the creatin excretion is confined to a short period after each meal.

The time honored twenty-four hour system of urine analysis has been and will remain important; indeed, it will remain indispensable in some kinds of metabolism work. The twenty-four hour system is, nevertheless, largely a relic of what might be called the nitrogen equilibrium period in the history of the science of nutrition. But nitrogen equilibrium has largely ceased to be a factor to which we must pay attention in metabolism studies on human beings. For we know perfectly well that it is only by means of carefully selected diets that we can give a person enough food to meet his energy requirements without at the same time giving him enough protein for the maintenance of a normal level of nitrogen equilibrium. We may often enough wish to determine the general level of nitrogen elimination, but it is rare indeed that we need to know or actually do determine any little discrepancy that may occur between the intake and the outgo of nitrogen. Nor can such discrepancies be determined except on the basis of experiments a great deal longer than one twenty-four hour period. Twenty-four hour urines are no longer needed even for very comprehensive analyses, and I am convinced that for many purposes, and particularly for clinical studies, we shall find that urine analysis based on definite three hour, or at most four hour periods of urine collection, will yield considerable new information and will greatly simplify the application of quantitative methods to the study of metabolism problems. The change will increase enormously the possibilities for doing quantitative metabolism work on patients, very few of whom can be relied on to collect twenty-four hour urines. The use of standard three hour urines will reduce to a minimum the extent to which the work can be ruined by carelessness or incompetence on the part of nurses; in fact, the nurse's part of the work will be almost eliminated. Private patients, even office patients, and outpatients in the hospitals, can be included in our metabolism investigations if we once get our metabolism period reduced from twenty-four hours to three hours.

For such work we shall need a large series of normal figures corresponding to the twenty-four hour figures which have been used in the past. I hope shortly to furnish such figures for the first three hour morning period and for a second period representing the effect of a standard test meal.

The practical advantages to urine analysis derived from the speedy microchemical colorimetric methods are less fundamental than are the advantages gained from the application of the same principles to the analysis of blood. Before the introduction of these methods one could hardly say that there was such a thing as quantitative blood analysis. There were no definitely recognized methods, and in the scattered analyses attempted each investigator usually improvised some sort of procedure according to his own light and without reference to any general need for some system of blood analysis. For a qualitative test for uric acid in blood, from 100 to 200 c.c. were required, and even then positive results were obtained only with blood abnormally rich in uric acid. Today we can make quantitative uric acid determinations on any kind of human blood, and do not need more than 10 c.c. for the determination. If necessary we can make the determination with 5 c.c. or less.

The merit of the newer microchemical system of blood analysis was convincingly demonstrated in connection with studies on the problem of protein absorption. For more than a generation different investigators had tried over and over again to demonstrate the nitrogenous digestion products in the blood stream, but had failed, and we had nothing but unproved hypotheses with which to explain the absorption of albuminous food. This problem became acute when it was shown by Kutscher, at the beginning of the present century, that the pancreatic digestion is capable of completely destroying the protein character of albuminous materials. The earlier investigators worked with anywhere from 100 c.c. up to several liters of blood in attempts to solve this problem, and failed. Working with from 2 to 5 c.c. of blood by the micromethods, it was shown with absolute certainty that the old hypotheses were false, that the simple digestion products elucidated by Kutscher were readily and rapidly absorbed. The products could be traced through different parts of the circulation and even into the various tissues of the body.

The methods were equally applicable to the determination of the waste products produced within the tissues. In studying these phenomena, the results obtained were as clear as if we had actually seen the digestion products (the amino-acids) pass into the blood and into the tissues, there to linger awhile, and finally break down and yield urea. To any one who has actually followed this process, as Dr. Denis and I followed it in cats, there can be no doubt as to the essential features of protein metabolism, and the ability of muscular tissues to form urea. Nor can there be any doubt about the important fact that metabolism products pass with great speed and readiness from the blood into the tissues, and vice versa. There is every reason to believe that when we determine the urea content of the blood we are at the same time determining approximately the urea concentration of the muscles.

The speed with which a condition of approximate equilibrium is established between the blood and the tissues in the case of ordinary soluble products has never received the consideration and study that this phenomenon deserves. The literature abounds in explanations of clinical or metabolism problems based on the assumption that the blood is almost a closed system with reference to the general tissues of the body. I doubt not but that there is such a thing as selective affinity between this or that product and this or that tissue. There must be some specific cause, however, for every case of such selective accumulation, for each case must be regarded as more or less of an exception to a general rule.

As an interesting erroneous explanation of an important metabolism problem based on a misconception as to the equilibrium phenomenon between the blood and the tissues may be mentioned the old hypothesis that creatin is the intermediate product in the breakdown of body protein into urea.

The muscles are relatively loaded with this simple crystallizable product, creatin, and it was indeed plausible to assume that this highly nitrogenous extractive, a hundred times as abundant in the muscles as in the blood, must be the connecting link between the broken down tissue protein and the urea. Feeding experiments with creatin did not yield urea; but to this Bunge retorted that creatin, when fed as such, does not have time to get into the tissues and is eliminated before there has been a chance to accomplish the conversion into urea. Both the original hypothesis and Bunge's auxiliary hypothesis advanced in its defense are thus clearly seen to assume the absence of the equilibrium phenomenon referred to. The fallacy in Bunge's argument has never been pointed out so far as I know, and it was not until three or four years ago that it was shown by microchemical analysis that Bunge's argument was false; that, in point of fact, creatin is readily absorbed from the blood by the tissues.

While the view that creatin is the chief precursor of urea was long ago abandoned, many still believe that a part of the urea is so produced. The important point, however, is that creatin is not to be regarded as essentially a precursor of urea, and that we accordingly must find some other explanation of why the muscles contain such large amounts of creatin. This is a problem of normal metabolsim rather than of clinical or experimental medicine. Whether out of it will grow any clinical problems we cannot yet tell. Human beings do not lend themselves to tissue analysis.

Before I go any further it is perhaps well that I should indicate a little more definitely the character and scope of the microchemical methods already in use for the analysis of blood. We have then, first of all, the colorimetric methods for the determination of each of the chief nitrogenous substances found in urine, that is to say, the total nonprotein nitrogen, the urea, the ammonia, the uric acid, the creatin and the creatinin. In addition we have Bloor's micromethods for the lipoids-fat, lecithin, and cholesterol; Marriott's nephelometric methods for the acetone bodies; Benedict's method for the blood sugar, and finally Lyman's very recent method for calcium. The remarkable thing about this series of methods is that they are devised with reference to a single instrument, the colorimeter, which can also be used as a nephelometer. With the combined instrument we simply measure the amount of color which the substance to be determined can be made to give with some suitable reagent, or we measure the cloudiness, if the characteristic reaction used results in a precipitation instead of a color. In principle these methods are somewhat similar to the clinical method of determining the hemoglobin in blood. In the analytic methods of earlier times the investigators proceeded on the principle that the amount of material taken for each analysis must be inversely proportional to its concentration of the substance to be determined, and this principle, for obvious reasons, virtually excluded human blood or blood from small laboratory animals. In the microchemical system of analysis, on the other hand, the guiding principle is to overcome the lack of concentration and the limited supply of blood by the application of correspondingly intense and sensitive reactions. The amount of blood used for each determination in the series mentioned above varies from a fraction of 1 c.c. up to 10 c.c. To be strictly practical, a blood method must not require more than 10 c.c. of blood, and its value is greatly increased if it can be applied to 5 c.c. or less. On the other hand, when one attempts to work with too insignificant quantities, that is, with drops of blood, the technic again ceases to be practical, because this can be done only by a complicated system of weighing instead of measuring the blood taken. This modern system of blood analysis has all been developed within the past six or seven years, and it is still not complete.

I have made no reference to other recent useful analytic procedures, such as Van Slyke's methods for amino-acid nitrogen and for chlorids.

We are still in the early stages of a pioneer period of research opened by means of all this new technic, but it is clear that much research lies ahead of us with reference both to physiologic and to clinical problems. As yet there is not always sufficient agreement as to the values which should be accepted as strictly normal. Take the nonprotein nitrogen and urea, for example. There is no doubt, I think, that in case of strictly normal persons such as we find among medical students (or outside of hospitals), the nonprotein nitrogen content and urea content of blood are low. The nonprotein nitrogen will not exceed 28, or at the most 30 mg. per hundred c.c. of blood, and the urea nitrogen will be almost exactly one half of the nonprotein nitrogen. Nor are these levels materially affected by reasonable variations in the nitrogen content of the food. To me it seems a matter of considerable significance that we have to accept as normal considerably higher levels just as soon as we begin to work on hospital patients. Here values lying between 30 and 40 are quite as common as values under 30. There can be no doubt about the fact that efficiency of the kidneys is the chief factor which determines the level of waste products which any individual carries in his blood and tissues. The higher levels of waste products found among hospital patients must therefore indicate that at least one half of these persons have kidneys which are no longer perfect, kidneys which at one time or another and in one way or another have been damaged. Is this a clinical problem? As yet there has, of course, not been time enough to find out whether the less efficient kidneys are in a stationary condition or whether they are in a slow process of deterioration. In time the records of physicians and of hospitals ought to throw light on this problem.

One interesting aspect of the nonprotein nitrogen and urea problem is the question as to the effect of the food protein on the level maintained. In the case of strictly normal persons it makes practically no difference whether the diet is rich or poor in nitrogen. In persons having clinically damaged kidneys, the protein content of the food makes a great deal of difference. In many such cases (but not in all) it is possible by means of low nitrogen diets to reduce the nitrogen level of the blood to nearly or quite the normal level. The further elucidation of this point is, I should say, a clinical problem. In this connection one would naturally ask whether it makes any practical difference, or any difference, to the well-being of patients whether they carry a normal or high level of waste products in their blood. This is an obscure problem. As the level of nonprotein nitrogen in blood is raised, the percentage of the urea fraction of that nitrogen increases. When the nitrogen is very high, as in certain cases of threatened uremia, by far the greater proportion of the blood nitrogen (nonprotein nitrogen) is represented by urea.

Urea is believed to be harmless, and it is certainly true that a good many nephritic patients can go about feeling well, and yet carry as much as 100 mg. of urea nitrogen in their blood, while others go into so-called uremic coma without carrying any unduly high levels of nonprotein nitrogen or urea. Uremic attacks with low levels of blood nitrogen happen perhaps most frequently in cases of so-called toxic pregnancy. All this has been known for a long time.

We have lately taken up the study of blood in pregnancy partly for the purpose of verifying the findings previously reported by others, and partly with the hope of being able to advance the subject a little further.

The results which we have obtained have proved rather surprising, and are at least interesting. Our subjects are obtained from the Boston Lying-In Hospital, and we are indebted to Dr. Newell for the privilege. Indeed, the research is essentially a cooperative one between Dr. Newell, Mr. Foster and myself.

We have thus far analyzed the blood of about 100 pregnant women, most of them clinically normal. As yet we have paid attention only to the nonprotein nitrogen and urea. From the class of patients to which these women naturally belong we should expect to find substantially the same rather high level of nonprotein nitrogen and urea as we find in other hospital patients.

Such is not the case. Very few pregnant women, except the toxemic ones, give a nonprotein nitrogen over 30 mg. per hundred c.c. The more interesting fact, however, is that the urea of blood obtained from normal pregnant women is practically without exception very much smaller than the amounts of urea found in other normal human blood. Such other human blood does not contain less than 11 or 12 mg. of urea nitrogen per hundred c.c. The bloods of pregnant women, on the other hand, run between 5 and 9 mg., and very few indeed run as high as 9 mg. of urea nitrogen for 100 c.c. of blood. Whereas in other normal persons the urea nitrogen represents 50 per cent. or more of the total nonprotein nitrogen, in these bloods it represents only from 20 to 35 per cent. of the total.

Several investigators have recently published some observations on blood in pregnancy, and I am at a loss to explain their results. They have, to be sure, found a few low urea figures, but these have been exceptional, and they have thus failed to find this peculiar characteristic of pregnancy.

I would hesitate as yet to try to explain this remarkable phenomenon. The problem is complicated by the fact that we do not possess full information as to the percentage distribution of the nonprotein nitrogen of normal blood. We have been going on the assumption that this nitrogen, so far as it is not accounted for by the ordinary waste products, must be largely amino-acids, that is, valuable food products. This assumption is probably not quite correct, for the figures obtained by Van Slyke's method for amino-acids leave a considerable proportion of the nonprotein nitrogen of blood unaccounted for. Two thoughts naturally suggest themselves in connection with our peculiar analytic findings. A low proportion of urea should leave a higher proportion of amino-acids and other similar products (possibly peptids), and it is conceivable that this is the result of a mechanism for providing a more abundant and constant supply of the kind of nitrogenous food materials needed by the growing fetus. The other thought is this: The pregnant organism may be more susceptible than others to the toxic effects of certain waste products, and in self defense may be compelled to keep these waste products, including urea, at a subnormal level. This thought is rather attractive, for it contains the added hint that the blood in toxemic pregnancies may be abnormally rich in toxic products, even when the total amount of nonprotein blood nitrogen is not very high; from 35 to 40 mg. of nonprotein nitrogen in such blood may be an entirely different proposition from the same amount in other subjects. Whatever the correct explanation may be, the fact itself is, I think, decidedly interesting.

I have already referred once to Abderhalden's pregnancy test. The thought has, of course, occurred to us that urea determinations in the blood may have some diagnostic value with reference to pregnancy. But as yet we have had only a few cases representing the third month of pregnancy and no earlier ones. I therefore make absolutely no claims in this direction.

Before leaving the subject of the nonprotein nitrogen and urea, I ought perhaps to refer briefly once more to the use and value of these determinations as means of estimating the renal efficiency, and to the "refinement" represented by the so-called Ambard coefficient, which is simply a combination of urea determinations in blood and in the urine. The underlying idea of this combination is to eliminate any confusion which might arise because of changes in the blood concentration (in urea) due to the level of the general protein metabolism. In normal persons, as I have already indicated, there is no material change in the urea content of the blood because of changes in the level of the nitrogen metabolism. In nephritics, considerable variations can be produced by changes in the diet; but these changes are produced very slowly so that it usually requires several days of low protein feeding to produce a marked alteration in the urea content of the blood. Yet nephritics, like normal persons, adapt themselves promptly to changes in the protein content of the food, and, like normal persons, tend to remain in a condition of nitrogen equilibrium. The complicated mathematical formulas introduced in connection with the Ambard coefficient do not tend to increase one's confidence in that coefficient. It is difficult to see how square roots and cube roots can help to elucidate such a simple metabolism proposition.

Work along the lines of the Ambard coefficient is one of the researches I had in mind in stating that many metabolism investigations based on metabolism periods shorter than twenty-four hours are now being made. The Ambard period, seventy-two minutes, seems to me, however, to be too short. I believe that a more suitable condition for studying the effects of the metabolism level on the urea retention will be found in connection with the three hour metabolism period to which I have already referred.

Determinations of nonprotein nitrogen and urea in blood have up to date proved the most popular in the study of blood. This is natural enough, at least so far as it concerns clinicians, because these determinations stand for concepts which to them are perfectly clear.

A theoretically equally interesting determination in connection with certain clinical problems should be that of the ammonia. Ammonia determinations in urine have become important in connection with the study of acidosis. Very few, however, have ventured to undertake the determination of ammonia in blood, notwithstanding the fact that it has figured very extensively in attempts to make ammonia responsible both for uremic and for diabetic coma. It is not difficult to see why this field is being neglected. No one recognizes more clearly than I do that the method for the determination of this substance in blood is far from easy. Moreover, the amount of ammonia present in blood is so small that it is difficult to see how these traces can be of much clinical significance. It is an interesting and remarkable fact that even in diabetic acidosis, when the daily urine may contain several grams of ammonia, the concentration of ammonia does apparently remain at an extraordinarily low level in the blood. If any one should here attempt to apply an "Ambard coefficient," he would doubtless be led into the very highest fields of mathematics before a satisfactory formula could be obtained. I sometimes suspect that there is something wrong about our ammonia determinations in blood. Dr. Denis and I have repeatedly returned to the investigation of the subject; we have spent several weeks on it again this year, but as yet have found nothing to indicate that our earlier work is not substantially correct. Henriques, in Denmark, has recently published an apparently very thorough research on the same topic, and has in the main verified our findings. For the present, therefore, the problem of the ammonia in blood remains as before, theoretically interesting, but practically unfruitful.

For several years the determination of creatinin in urine has been used and accepted as an indispensable feature of every metabolism investigation involving urine analysis. In hospital work this determination is absolutely necessary as a check on the work of the nurses. It is the only means we have for detecting gross errors in the collection of the urine. Every other urinary constituent may vary up and down, but the creatinin remains practically constant, so that when a patient's creatinin output begins to show remarkable variations it is time to give up the experiment or begin all over again.

The creatinin in the blood is normally not large, 1 or 2 mg. per hundred c.c. of blood, but it is normally constant and easily determined. I say this advisedly, though I recognize that one investigator has lately published results purporting to prove that the values as ordinarily obtained are several times as great as the true creatinin content of blood.

The creatinin is one of the last waste products to accumulate in the blood as a result of kidney insufficiency. It is apparently only in rather advanced uremic conditions that this product begins to increase in the blood. A great many more observations are needed, however, on this point, and as the determination is easy and simple when a standard creatinin solution has once been obtained, it is a determination which should be taken up by clinicians. The only reason why clinical workers have not already stepped into this field is the fact that pure creatinin, or a pure creatinin salt, is needed for the standard solution which must be used in connection with the colorimetric determinations.

It seems strange that no chemical manufacturer has yet undertaken to prepare creatinin zinc chlorid to meet the demand for this salt.

Pure creatinin can, as a matter of fact, be dispensed with in connection with this determination. It takes only a few minutes' work to determine colorimetrically the creatinin content of normal urine by the help of my older potassium bichromate method. By appropriate dilution of such urine with half normal hydrochloric acid a perfectly serviceable standard creatinin solution is obtained, and this solution will keep for weeks, if not indefinitely, so far as the creatinin content is concerned. The changes which do occur, darkening in color, precipitation of uric acid, etc., do not destroy the value of the solution as a creatinin standard.

Among the waste products of the animal metabolism there is none more interesting, alike to the laboratory worker and to the clinician, than uric acid. From the standpoint of normal metabolism it is generally believed that the uric acid problem is very nearly settled. I am less sure on the subject now that I would have been two or three years ago. The remarkable results reported by S. R. Benedict on the presence of extraordinary quantities of latent uric acid in beef blood, his demonstration of a synthesis of uric acid in Dalmatian dogs, and his findings indicating that the allantoin in dog urine does not represent decomposed uric acid, all indicate that we may yet have to revise in radical fashion views which but a short time ago seemed firmly established. The many vague clinical hypotheses which used to be associated with uric acid have, however, been swept aside. The uric acid crank has all but disappeared from among the medical profession. As a problem of comparative physiology, uric acid is exceedingly interesting, and from the standpoint of both clinical and experimental medicine it is yet destined to be the subject of many investigations.

The human organism has the almost unique distinction among mammals of not being able to destroy any of the uric acid which it produces. The human kidney is also less competent to get rid of this waste product than we could wish. In consequence of this combination of circumstances, the quantitative determination of uric acid in the blood is one of great promise and importance. The method for this determination is of such recent origin that the modern literature on the uric acid in blood is not large, and yet there is already considerable diversity of opinion concerning both the uric acid content of normal blood and the pathologic fluctuations which may occur. How far these differences may be due to imperfections in the analytic method or to lack of skill in the use of the method I am not prepared to say.

It is absolutely certain, however, that some kinds of human blood carry abnormally large amounts of uric acid and at the same time substantially normal amounts of nonprotein nitrogen and urea. It is equally certain that other kinds of blood carry substantially normal amounts of uric acid, yet exceedingly large amounts of total nonprotein nitrogen and urea. The former condition, as was to be expected, is most frequently found in gout, the latter in nephritis. The high uric acid in the blood of the gouty, like the high urea in the blood of nephritics, is due to lack of excretory power on the part of the kidneys and not to increased production of uric acid (or of urea).

With reference to the origin of the uric acid produced within the body, we cannot yet say how large a proportion comes from the muscles and how much from glandular organs. That the glands, at least in proportion to their size, are by far the most important centers of uric acid production follows as a matter of course from our present day teachings and beliefs to the effect that uric acid is formed in or from the nuclei of cells. The validity of this view can be experimentally demonstrated. Even in laboratory animals whose blood and muscles contain very minute traces of uric acid, we find in the spleen, liver, etc., as much as from 10 to 14 mg. per hundred gm. of organ, that is, fully twenty times as much as we find in the blood or the muscles.

I have confined this discussion to a consideration of only a few familiar waste products. As we get into the field of blood and tissue analysis, as we get into experimental touch with the chemical processes going on within the body, we must also begin to pay more attention to products which never find their way into the urine. I must not close without having called attention to the very interesting and promising line of research in the field of the lipoids—a field opened by the application of micromethods worked out by Dr. Bloor. Already Bloor has established the normal relationship existing between these lipoids—fat, lecithin, cholesterol—and the results obtained seem to furnish a basis for a more detailed knowledge concerning the intermediate processes involved in the metabolism of the fats. The extraordinarily practical character of the analytic procedures developed for this work should insure the attention of the clinician, for the fats, no less than the proteins, are associated with many metabolism disorders; I need but refer to malnutrition in infants, pathologic obesity, lipemia, and diabetes.

Before closing I wish also to make just one brief reference to another class of products in the study of which a beginning has been made on the basis of microchemical methods. I mean the phenols. As yet we have not gone beyond the urine, however, in the study of these substances (which, as you know, are chiefly the products of intestinal putrefaction, and at least some of which are distinctly poisonous). I had hoped before this to have definite methods for the determination of phenols in blood, for it is their concentration in the blood, not the amount in the urine, which is significant in relation to diseases. We have run into these products both in connection with studies on epinephrin, which is a phenol, and in connection with uric acid, which in chemical constitution and in many of its reactions is also similar to the phenols. These very similarities are the difficulties against which we have to contend when endeavoring to determine the ordinary phenols in blood. It is a difficult problem, but in time it will be solved.

It will seem to you that I have discussed little else than analytic methods—a subject which cannot be made very interesting outside of the laboratory. I am convinced, however, that both the biochemist and the clinician must pay more and more attention to this least interesting but most important aspect of research. Scientists of earlier generations discovered a great many important facts in the realm of metabolism and of medicine. It will be found on scrutiny, however, that their discoveries were accidental or of such a character that they were bound to be made by one or another reasonably keen observer. That pioneer stage is over. The surface problems have been solved.

It is now only by means of finer and ever finer technic that progress can be made toward the solution of the many metabolism problems which must be solved by us and those who folow us, in order to secure an increasingly better basis for clinical, experimental, and, above all, preventive medicine.

DECENCY AND SAFETY AS PUBLIC HEALTH FACTORS

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The detached point of view is often mentioned in modern literature as the property of a few select minds. To be impersonal, to get away from detail, and especially to get away from the narrow point of view of the specialist, is extremely difficult in this age of specialization. The strongest objection that can be raised against specialization is that it anchors the mind in a narrow channel, and creates habits of thought that prevent the specialist from estimating the value of even his own specialty.

The truly scientific point of view should be sufficiently detached to see the relation that things bear to each other in their true proportion. It should be close enough to recognize clearly the character of the data available on special subjects, and distant enough to make a comparison of values. The correct balance must be one that does not overestimate or underestimate.

A survey of the progress that has been made in public health science shows that it has been marked by the rapid development of a number of branches of special knowledge. Public health science has created a new field for the specialist. The chemist, the bacteriologist, the physican, the sanitarian, the statistician and the engineer have all found new territories for the rapid and fruitful development of their specialties. The field of effort is so new that it has been largely unexplored, and the pioneers have found their work as yet uncoordinated, and the value that should be put on it still undetermined.

Numerous important factors have been discovered which contribute in marked manner to the public health. The development of these has not been regular, but irregular, and some have been pushed forward while others have lagged behind. Just what qualifications justify the recognition of a principle as an important factor in public health science is still debatable.

Like other sciences, the science of public health has been accompanied by a background of philosophy, and the philosophers have been divided into a school of realists and a school of idealists. The irrepressible conflict between the practical and the academic is again being fought out in this new realm. In this instance, the issue at stake is of more importance to the vitality of civilization than any previous battle between these two groups of philosophers. There are, on the one hand, those who consider that public health should concern itself only with direct causes of disease. They are pragmatists, and look with some degree of ridicule on their more esthetic opponents. Their slogan is safety. Safety first, it must be admitted, is the foundation stone of public health science. Life comes before health. To this extent the realists are justified in their practical point of view. They are supported by the character of the public health laws that have already been written. They are also supported by the attitude of the courts. To them the main question at issue is always between safety and danger. In their catalogue, public health is concerned chiefly with quarantine as a remedy for epidemics, with sanitation as a remedy for contagion, and with sterilization as a remedy for infection. All they ask of the courts is to enforce the law against those things which are dangerous to health.

On the other hand, there has been a steady growth of the ranks of academic philosophers who are devoted to the cultivation of sentiment. Sentiment and the esthetic sense, they believe, have a value which has been neglected by the school of pragmatists. In their survey of the progress of the race, as well as of the individual, they lay claim to the discovery that sentiment lies at the basis of all joys. Even the desire for life, they maintain, is only a sentiment. They refuse to draw the line sharply between the practical and the academic. They assert that it is the stage that has been reached in the evolution of the species or of the individual which dictates what should be included or excluded from consideration by public health science. They point out that the word "health" is a large word, and that it should include much more than the question of safety. They admit the importance of safety, but assert that safety alone is not enough. They join the framers of the constitution in believing that the individual is entitled, not only to life and liberty, but also to the pursuit of happiness. They firmly believe that the enjoyment of life is just as important as life itself, and that health in its true sense must include "living" as well as existence.

THE ELEMENT OF DECENCY

"Decency" is a word that formerly had a rather limited meaning. In recent years this word has been broadened so as to signify much that contributes to the enjoyment of one's food and drink, and one's surroundings. For example, sanitation has contributed very largely to the decency of dwellings through the removal of objects offensive to the eye, and perhaps also to the nose, although not necessarily directly dangerous to health. Cleanliness of streets and houses and of the environment was formerly urged by the realists in the belief that disease originated mainly in the environment. The discovery that sources of infection are mainly human and animal, and that disease is transmitted for the most part by direct contact, has justified the abandonment of sanitary inspection and sanitation so far as they are concerned with the environment as the cause of disease. Nevertheless, the idealist still insists on cleanliness and sanitation as necessary public health measures. The cleaning of streets and of dwellings will still continue, but not for the old reasons. The sense of decency properly describes the sentiment that at the present time stimulates the carrying out of clean-up campaigns.

A much more important application of the sense of decency is found in relation to food and drink. It is instinctive among well bred people to desire only food and drink that is clean, irrespective of considerations of safety. While this instinct may have had its origin in a race experience that proved the connection often existing between dirt and disease, yet culture has developed this instinct to such an extent that the enjoyment of food and drink is destroyed if these are known to be insanitary.

Legal recognition of the requirements of decency are contained in the federal pure food law, which prohibits the sale in interstate commerce of any food or drink that is "filthy, putrid or decomposed." While these words may have been embodied in the law because they were believed to provide the element of safety, yet they cannot be interpreted otherwise than as words that also include a large element of decency. Filth may not be dangerous, and still be filth. A food that is correctly characterized by all three of the words "filthy, putrid or decomposed" might be boiled or sterilized until it was safe, so far as disease is concerned, but still be unfit for food according to the provisions of this law.

For example, eggs that have become decomposed have been put on the market in a liquid or dried or frozen condition, and have been condemned without positive evidence of danger, but on the ground that they are offensive because filthy, putrid or decomposed.

The single service package is coming into use. Paper wrappings are being adopted for bread, and crackers, and other foods that were formerly dispensed loose. The safety element may also be a factor in this campaign for single service; but in the minds of the consumer the decency element is a much more powerful factor. The consumer prefers clean bread, clean crackers, clean fruit, clean candy, because cleanliness contributes to pleasure in consuming food.

The consumer is entitled to the enjoyment of food and drink, as well as to their being safe. The factor of decency is creeping into health regulations almost imperceptibly. One of the most notable examples of this is the recent adoption of the grading system for the control of municipal milk supplies. In this system milk is graded according to its sanitary character into three grades, labeled A, B and C. In all three grades the milk is pasteurized, and if the process of pasteurization is properly carried out, the milk is entirely safe because those species of bacteria causing disease have been destroyed. Most sanitarians are inclined to believe that as a measure of safety, pasteurization is, in fact, effective in rendering all milk safe, irrespective of its previous sanitary condition. It is true that some experts assert that there may be toxins remaining in unclean milk after pasteurization, or that some spore-forming bacteria outside of the list of recognized pathogenic species may be injurious to infants and children. In general, however, there is good evidence that the differences in safety between milks that are sanitary and insanitary, provided these are properly pasteurized, are comparatively slight. This being so, the question arises, Why should milk be graded? The answer is that the masses of milk consumers have the sense of decency sufficiently developed actually to prefer as a beverage a milk that has had a clean history to a milk that has had an unclean history, even if they know that the two milks are equally safe. Analyzed more closely, this is because there is more enjoyment in drinking clean milk, and less enjoyment in drinking unclean milk.

THE PURITY OF WATER

Of late the esthetic philosophers have brought up the same issue in connection with public water supplies. The words "pure and wholesome" appear in almost all water contracts as describing the quality of the water to be used by municipalities. The definition of the word "pure" as applied to water seems still to be a debatable question. There are apparently many kinds and degrees of purity. The introduction of laboratory tests by chemical methods was at first thought to be a fair means of settling this controversy. The refinement of chemical methods seemed to promise the discovery of all forms of water impurity, so that a water free from impurity could be distinguished from one that had been contaminated in any way. The fallacy of this belief became apparent immediately on the advent of bacterial methods of water analysis. It was soon recognized that water apparently pure by chemical tests might be exceedingly impure by bacterial tests. Sanitarians once more believed that in the bacterial test they had at last discovered a criterion by which the purity or impurity of water could be judged. And now the integrity of the bacterial test as a measure of impurity has been shattered by the advent of methods of sterilization. Chlorinated lime (bleaching powder) or chlorin gas can be applied to any water—no matter how impure or how badly infected with bacteria—and after such application the bacteria will be so completely destroyed that so far as the laboratory test for bacteria is concerned, the water will appear to be practically sterile. Thus, the measurement of purity by the bacterial test can be completely nullified by previous sterilization processes.

It is now a very lively question as to what public health experts mean by the word "pure" as applied to water. For example, if one assumes that a water comes from a surface supply and receives on the watershed large quantities of sewage, but that it is then impounded in a reservoir in which considerable sedimentation takes place, and is then sterilized with hypochlorite solution so that the bacteria are killed, is such a water to be accepted as qualified to receive the designation "pure"? Or, on the other hand, if one assumes that a municipal water supply comes from an uninhabited territory, such as woodland lakes, and receives no sewage from human habitations, and hence no form of treatment is necessary, is such a water more deserving of the term "pure" than the water in the former case?

Most of the cities on the Great Lakes, both in Canada and in the United States, use the Great Lakes not only as sources of water supply but also as mechanisms for sewage disposal. Projecting from one part of the city are pipes discharging sewage into the lakes, and more or less close by, from another part of the same city, extend pipes through which lake water is pumped into the city for drinking purposes. From time to time public sentiment has contended that the two pipe lines were too close together. Chicago actually decided to withdraw most of the sewage from the lake and discharge it into the Illinois River, which flows into the Mississippi above St. Louis, thereby handing the sewage which Chicago citizens disliked to the citizens of St. Louis for drinking purposes. In Cleveland and other cities, public sentiment from time to time has forced the city to extend the pipe line drawing water from the lakes beyond the zone supposed to be invaded by sewage. At Toronto and Milwaukee, systems of purification and sterilization have been installed on the theory that though the sewage is mixed with the drinking water, it can be rendered pure by sufficient treatment. The St. Louis courts, when appealed to, decided that the Mississippi River water, even though polluted with the sewage of Chicago, corresponded to reasonable standards of purity.

The city of Fulton, N. Y., has a public water supply coming from a well known spring, and the streets are sprinkled with the same spring water that is sold in bottles to other municipalities.

It is a fair question to ask whether a distinction should be made between a purity of water due to prevention of contamination, and a purity due to various forms of treatment. From the consumer's standpoint, this question can be judged just as in the case of milk and foods. When the consumer is presented with two glasses of water and informed that both of them are free from bacteria, and can observe that both are clear and free from odor and sediment, and is assured that both taste equally well, the question arises, Will the consumer be prompted to exercise any serious choice when informed that one of these waters was polluted with sewage while the other was not? I think it is reasonable to suppose that the masses of the people have a sense of decency developed to such an extent that without hesitation they will voluntarily choose to drink the water that has never been contaminated with sewage.

It is undoubtedly for this reason that all of the offices of the city hall at Jersey City, N. J., are supplied with bottled spring water for politicians to drink, in spite of the fact that the courts have decided that the municipal water supply of Jersey City is pure and wholesome, though it is contaminated with the sewage of the cities on the watershed, because the water is sterilized with chlorinated lime. It is undoubtedly for the same reason that the office buildings of New York City are supplied with bottled spring water for the business men of New York to drink in spite of the fact that the Croton and Catskill supplies are also sterilized with chlorinated lime. In these instances, the politicians and business men referred to seem to have allied themselves with the ranks of the esthetic philosophers, as opposed to the pragmatists.

THE DETERMINATION OF DECENCY AND PURITY

But our friends among the pragmatists are prepared to assert that there is no practical way of determining purity in the esthetic sense. They will maintain that the courts cannot recognize the sense of decency because regulations cannot be written in such terms. They are inclined to limit our public health propaganda, not only to measures of safety, but also to standards of cleanliness that can be determined by the chemical and bacterial laboratories. They assert that there is no other method of measurement feasible, and that public health officials and the courts cannot give consideration to distinctions that are purely academic. For example, cow manure in milk is academic, or sewage in water is academic, if the quantity cannot be accurately determined by chemical or bacterial tests. The answer to this objection, so far as the courts are concerned, is that the courts can always apply the general method of measurement that is commonly used by them in determining the meaning of other defining words. This method consists in the use of the meaning commonly accepted by the masses of the people. For example, if the word "pure" as applied to water means "free from sewage" in the minds of the masses of the people, and this feeling is so strong that the masses of the people prefer to drink a water free from sewage to a water that has been contaminated with sewage, the courts will accept this attitude of the people as a proper means of determining the significance of the word "pure" as applied to water. The degree of importance that must be attached to the element of decency as it relates to any particular thing can at any time be determined by testing public sentiment on this subject.

What attitude should the leaders in public health science take with regard to decency as a public health factor? Shall they encourage the development of the sense of decency on the part of the public as a desirable thing, and as something that can be applied to public and private environment, and to food and drink, in a way so practical that a reasonable degree of decency can be enforced by public officials? Or shall the leaders in public health science conclude that decency is academic, and that the esthetic sense has no place in the list of considerations on which the activities of public health officials are based? If health means more than life, if health includes the enjoyment of life, if health is to include the enjoyment of one's environment, and the enjoyment of things one eats and drinks, then public health administration cannot ignore the demands of common decency in the steps that it takes to safeguard public health.

The progress of the people toward better things seems to be constantly marked by improved sanitation. Public sanitation and private sanitation contribute directly and indirectly in so many ways to better living, better thinking and better working that they seem to be an essential part of the process of development. Whether or not the workers in public health science recognize decency as an important factor in public health science, the common people themselves have already given decency such recognition. The reason the instinct for cleanliness and decency has developed with the race is that these contribute in a marked degree to the satisfaction of living. If public health includes anything more than the element of safety, then decency for its own sake deserves a place in the catalogue of public health administrators.

30 Church Street.

Marching.—While the present war especially in the western regions has involved much trench fighting, besieging, etc., it must be borne in mind that marching still occupies much of the soldier's time, much more than does combat. This is clearly seen in the Russian campaigns. For this reason it is of prime importance that the soldier be able to march well. The general public have a mistaken idea of the length of a heavy march, the tendency being to place the estimate altogether too high. A fair day's marching for any army is 12 miles. The strenuousness of the march depends to a large extent on the size of the marching force. A good day's march consists of 15 miles while 20 constitutes a forced march. Quick time for the English armies consists in about 120, 30-inch steps per minute, which gives 100 yards per minute. From 2½ to 3 miles per hour is good marching. It takes a brigade six hours to march 15 miles while a division needs eight for the same distance.—Hygiene and War, by George Ellis Jones, Ph.D.

TREATMENT OF CHANCROID *

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We recognize four clinical varieties of chancroid:

1. Ulcus molle, the ordinary variety of ulcer, has the characteristic punched-out appearance, with edges cleancut and often undermined.

2. Ulcus molle miliare begins as a small papule, which rapidly becomes a pustule, the center of which is a deep craterlike ulcer. It occurs most frequently on exposed surfaces in the loose skin, just posterior to the mucocutaneous junction of the prepuce in man and about the labia majora and the perineum in woman.

3. Ulcus molle elevatum is the sore most frequently confused with indurated chancre. Its incubation period is from nine to twenty-one days. The sore is slightly raised above a mildly infiltrated base. The edges are not undermined, and it has little tendency to spread. This form is resistant to ordinary treatment and is prone to persist for from four to eight weeks.

4. Ulcus molle phagedenicum is the most severe and the most resistant form with which we are familiar, and occurs as a complication of both chancroid and syphilis. It spreads rapidly, is made worse by any half-way measures, and, unless checked early, is capable of destroying a part or even the whole of the penis.

To these McDonagh adds a fifth classification, the ulcus molle serpiginosum. This ulcer may occur as a complication of bubo or it may begin as a furuncle in the groin. It is found chiefly in the tropics, is highly resistant to all forms of treatment, and frequently remains a slowly spreading ulcer for years. We have never encountered it in this country.

The treatment of chancroid, at the best, is unsatisfactory, as is evidenced by the great variety in the methods of treatment advocated by different authors. If seen early, a fair percentage of patients do well under nearly any antiseptic treatment, particularly if they are cleanly in their habits. In fact, we believe that 60 per cent. of chancroids, taken as they come, of anywhere from two days to two months' duration, will heal in from four to eight weeks with no treatment except rigid cleanliness, a little calomel, or other dusting powder, if the sore is within the preputial cavity, or a moist dressing of black wash if the sore is exposed. If seen within the first two or three days, thorough cauterization with nitric acid is quite successful, but great care must be used not only to destroy completely every sore, but to keep the surrounding tissue covered with an antiseptic until healing of the cauterized areas is complete.

It is the sores that are not seen early, or that are not favorably influenced by cauterization, which cause the trouble and for which we have never been able to find in the literature a thoroughly satisfactory method of treatment.

Zinc ionization gives good results, but requires special apparatus and consumes considerable time. Argyrol crystals applied directly to the sore for three

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

or four minutes, followed by a moist dressing of 10 per cent. argyrol or 1 per cent. protargol, have been satisfactory in a few cases; in others they have not even checked the spreading of the ulcer.

A satisfactory method of treatment for the large majority of cases of chancroid in the preputial cavity is the thorough application of a 25 per cent. solution of copper sulphate crystals in water. The ulcer is first anesthetized with a 10 per cent. cocain solution and then lightly curetted with an applicator wound firmly with cotton, after which the copper solution is applied. It is left in contact with the sore for three or four minutes and then sponged off. On the dry sore a light dusting powder, calomel or a morphin-narcotin mixture is used, and one or two thicknesses of gauze, moistened with black wash or tap water, are applied and the foreskin drawn forward over the whole. This is changed two or three times daily; and every second day, unless granulation is progressing satisfactorily, a 10 per cent. solution of copper sulphate is applied. The majority of chancroid ulcers do well under this treatment, but from 15 to 20 per cent. tend either to persist many weeks, or to grow gradually larger and deeper in spite of treatment. The direct cause is the failure to sterilize the wound.

RESULTS OF AUTHORS' METHOD OF TREATMENT IN THIRTY-FOUR CASES

Case No.	No. of Lesions	Incubation Period	Previous Treatment	Duration Before Fulguration	Darkfield or Stain	Diagnosis*	Number of Treatments with Violet Ray	Healed	Bubo	Wassermann	Remarks
1	1	7 days	No	2 weeks	Negative	U. M.	One	8 days	No	None	
2	2	13 days	Argyrol dusting powder	2 months	Negative	U. M. M.	One	9 days	Yes, not opened	Negative	Bubo subsided
3	1	7-8 days	Argyrol crys.	4 weeks	*Not made*	U. M.	*One*	7 days	No	None	
4	3	7 days	No	1 day	Negative	N. M.	One	11 days	No	Negative	2 or 3 sores healed in 4 days
5	2	4 days	Caustic argyrol and violet ray	6 weeks	Negative	U. M. M.	One	7 days	No	None	Exposed sore
6	1	4-5 days	Caustic aristol argyrol	5 weeks	Negative	U. M.	One	9 days	No	None	Exposed sore
7	1	Indefinite	None	3 weeks	Negative	Chancre	One	5 days	No	None	Hard chancre developed at site of sore
8	4	4 days	Antiseptic wash	3 weeks	Not made	U. M.	One	5 days	No	None	
9	1	10-12 days	None	12 days	Negative	U. M. E.	One	5 days	No	None	
10	1	Indefinite	None	4 days	Negative	U. M.	One	4 days	No	None	
11	2	Indefinite	None	17 days	Negative	U. M. M.	Three	16 days	Yes, not opened	Negative	
12	1	Indefinite	Salve	7 days	Negative	Chancre	Two	14 days, not healed	No	Positive	
13	2	2 weeks	Caustic and calomel	2 weeks	Negative	U. M. E.	One	6 days	No	None	Circumcised 2 days after healing; ½ circumference became chancroidal, healed in 2 weeks
14	1	Indefinite	None	3 days	Negative	U. M.	One	5 days	No	None	
15	1	10 days	Dusting pow.	7 days	Refused	U. M. E.	One	6 days	No	Refused	
16	1	Indefinite	None	8 days	Negative	U. M. M.	One	7 days	No	None	Hard chancre developed at site of sore
17	3	9 days	None	1 day	Negative	U. M.	One	6 days	No	+++	
18	1	Indefinite	None	10 days	Negative	U. M.	One	5 days	No	None	Bubo incised, healed slowly; applied $CuSO_4$ and violet ray, healed rapidly
19	1	4-5 days	None	7 days	Negative	U. M. M.	Two	14 days	Yes	None	
20	4	9-10 days	Calomel	3 weeks	*Not made*	U. M. E.	Two	9 days	Yes, subsided	Refused	Phagoclinic case; patient very uncleanly
21	3	2-3 days	Antiseptic	6 weeks	Refused	U. M. P.	Three	25 days	No	Refused	
22	1	12-13	Antiseptic	8 days	Negative	U. M. M.	One	5 days	No	None	
23	2	Indefinite	None	2 weeks	Negative	U. M.	One	10 days nearly	Yes	None	
24	1	Indefinite	?	2 months	No	U. M.	Two	5 days nearly	Yes, incised	Negative	Nearly healed on 5th day; not seen afterward
25	2	Indefinite	None	10 days	Negative	U. M.	One	10 days	No	++++ (2 wks. later)	
26	3	2 weeks	Ointment	4 weeks	None	U. M.	Two	5 days	No	None	
27	2	5 days	None	3-4 days	None	U. M.	One	5 days	No	None	
28	1	2 weeks	?	5 days	Negative	U. M. M.	One	6 days	No	None	
29	1	10 days	None	2 days	Negative	?	One	6 days	No	....	Has been sent for Wassermann test; think there is a hard chancre at meatus
30	3	4 days	Calomel	14 days	Negative	U. M. E.	Two	7 days	No	None	
31	1	5 days	None	3 days	Negative	U. M.	One	4 days	No	None	
32	2	Indefinite	None	11 days	Negative	U. M.	Two	7 days	No	None	
33	5	Indefinite	Calomel	8 days	Negative	U. M.	Two	9 days	Yes, subsided	None	
34	1	Indefinite	Aristol	2 weeks	Negative	?	Three	12 days, not healed	No	Positive	

* Names in diagnosis column: U. M., Ulcus molle; U. M. M., Ulcus molle miliare; U. M. E., Ulcus molle elevatum; U. M. P., Ulcus molle phagedenicum.

In order that a method of treatment of chancroids may be regarded as satisfactory, it must not only effect a complete sterilization of the sore and thereby a cure of practically all cases within a reasonable length of time, but in order to be available to the large majority of physicians, it must also be comparatively simple in form and means of application. Such a method, or combination of methods, we believe we have devised, and we base our conclusions on the observation of about sixty cases during the past year. In this series we have had practically 100 per cent. of early cures.

Regardless of the appearance, duration or previous treatment of a venereal sore before it is destroyed, it is always examined for spirochetes.

If antiseptics have been used, it is our custom to apply a moist dressing of cotton wet with tap water for from twenty-four to seventy-two hours, during which time two or three microscopic examinations are made. If no treatment has been previously given, the examination and destruction of the sore is accomplished at the first visit.

A small pledget of cotton is wet with 10 to 20 per cent. solution of cocain and applied to each lesion. After four or five minutes the field is carefully cleansed with soap and water and dried. Each lesion is then thoroughly wiped out with a cotton wound applicator until bleeding ensues. This is arrested by sponging, and when only serum exudes from the wound, this is collected for examination by dark field or stain, as may be the choice of the operator.

A 25 per cent. solution of copper sulphate in distilled water is now applied to the sore, and the short high frequency spark from a rather fine-pointed vacuum electrode is applied directly to the sore for one to three minutes, depending on the extent of the ulceration. Especial care is exercised in carrying the point of the electrode well down into any fissure or undermined edge, and the area of application should extend over the edge of the sore about one sixteenth inch into the doubtfully healthy area.

The current is not turned off until every crack and crevice has been thoroughly treated and the surface of the sore is changed to a dark greenish gray. It is then wiped dry and some antiseptic powder is lightly applied to the entire mucous surface of the preputial cavity. If the sore is exposed, it should be covered with a thick moist dressing, for which any very dilute antiseptic solution may be used, as a 1:10,000 or 1:20,000 mercuric chlorid solution; or even tap water answers nicely in most cases. This should be changed once or twice daily, and must not be allowed to stick.

The patient is instructed to return in two days, and, if the work has been carefully done, the wound will present a perfectly healthy granulation that will go on to complete healing in a few days. If the sore does not look clean, the application is repeated at the second visit. The patient returns each second day. If the original sore was large, or if a small sore does not seem to be closing rapidly, we have made it a practice to apply, at each visit, either a 10 per cent. copper sulphate or a 5 per cent. silver nitrate solution. We do not hesitate to repeat the original cauterization at any time we have reason to think the chancroidal infection is not completely eliminated.

The complete success of this, as of any other method, is dependent on careful, thorough work. There is more danger of too little cauterization than of too much, and thorough cleansing at the time the sore is destroyed must not be forgotten. Again, the after-care, especially with ulcus molle outside the preputial cavity, and with ulcus molle miliare, is of the utmost importance. If one fails to carry the electrode to the bottom of the cavernous ulcer, then one is lost. It heals over the surface, and in two or three days breaks out anew, larger and deeper than before.

If the dressing on an exposed surface is not changed once daily, and moistened at least three or four times, in many cases one will not succeed.

The accompanying table gives our results in all cases in which data are complete. A number of patients failed to return after the first treatment. Several of these have been seen later, and reported uneventful healing in a few days. In no case have we been able to record a failure.

Three or four cases in which the lesions did not heal well or recurred later developed a positive Wassermann reaction, notwithstanding the fact that careful microscopic examination was negative for spirochetes.

To be thoroughly scientific, one should always be able to explain and prove the modus operandi of any treatment presented to the profession. Unfortunately, we are not able to do just that, but we believe that by this combined treatment we have been able to produce deep sterilization of the chancroid ulcer with a certainty not heretofore effected. This has been done with great satisfaction to ourselves and our patients. We present the method with the hope that our friends may find in its application the same assurance of success that we enjoy.

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ABSTRACT OF DISCUSSION

Dr. Noah E. Aronstam, Detroit: The method of procedure in the treatment of chancroids as outlined by the essayists is neither novel nor unique. Old French authors on the subject as far back as 1880 advocated the use of strong solutions of copper sulphate. In the Allgemeine Krankenhaus of Vienna the same method was pursued twenty-five years ago. In the issue of 1902 of the *Russkiy Vratch* a similar method was mentioned.

The use of the high frequency tube on the lesions after the preliminary cauterization with copper sulphate is somewhat obscure and questionable to me. A pellicle is formed after such procedure on the sore, and hence the violet ray is unable to diffuse or penetrate and thus sterilize the lesion. My experience has been that it requires an untreated and unmolested lesion in order that the ray may prove efficacious.

As regards the varieties of chancroids, I am in the habit of classifying them as follows: (1) simple erosive chancroid; (2) miliary ulcer, or ulcus erosive miliare; (3) serpiginous form; (4) phagedenic; (5) pultaceous or necrotic; (6) gangrenous.

In the last four varieties the prognosis is unfavorable; the lesions prove very obstinate. Even in the simple variety a definite prognosis cannot always be ventured, and we should be guarded in expressing a decided opinion. There is no uniform method by which we can accomplish results. In my hands equal parts of phenol and iodin have proved useful. I refrain from using such caustic agents as strong solutions of silver nitrate, nitric acid and the methods promulgated by the authors for fear of inducing an indurated condition which may closely resemble the primary lesion of syphilis and thus mask and obscure the clinical features of the sore.

I wish to lay stress on the employment of bacterins in chancroidal lesions. I use a mixed staphylococcus vaccine, as frequently the chancroid harbors a mixed infection, superimposed on its causative agent, the Ducrey-Unna bacillus. I also desire to object to the term "chancroid." It should be changed to infective venereal ulcer, and the inadequate and antiquated term "chancroid" should be abolished.

Dr. H. L. Kretschmer, Chicago: The results that Dr. Robbins obtained with his combination treatment are better than the results we have obtained. We have been using the copper in 25 per cent. solution, preceded by 95 per cent. phenol, then applying the wet dressings just as he has done; that has given us very satisfactory results. I should like to ask Dr. Robbins how much of his good results he attributes to the action of the caustics and how much to the action of the high frequency current. I should like to ask whether or not in any of the cases of multiple chancroids he cauterized some of the lesions with copper and used high frequency, and treated some with the high frequency alone.

Dr. Charles W. Bethune, Buffalo: I should like to ask Dr. Robbins whether he obtained his high frequency current from the regular, standard high frequency machine which we use in fulguration, or from one of these small machines costing about $35. Is the latter sufficient to cause the penetration of the copper sulphate?

Dr. Robbins mentioned the use of mercurials in the treatment of chancroids. One can never tell absolutely that there is not a double infection with the spirochete. In that case one may mask the secondaries, possibly the general adenitis, and very probably the Wassermann reaction.

Dr. B. S. Barringer, New York: Dr. Livermore of Memphis, Tenn., sometime ago suggested that an ounce of argyrol crystals would cure all the chancroids in the United States, if properly applied. That was a rather vigorous statement, but we at Bellevue started to use the argyrol treatment. The ideal way that we found to use it was to cocainize the chancroid first and put argyrol crystals directly on it. Our results have been so good that we have practically given up every other form of treatment. We are rather inclined to agree with the gentleman who first published this statement.

Dr. Leland J. Boogher, St. Louis: This subject has been the *bête noire* of all of us. I have seen some cases that I did not believe any form of treatment would touch, and I remember one or two cases that ran on for a year or two until the tissue was almost entirely denuded. I have used crystals of argyrol and also another proprietary silver preparation. There are some cases in which I would like very much to have Dr. Robbins try his form of treatment. I have one such patient now, whom I have been treating about three months, and he is getting worse every day.

Dr. G. G. Smith, Boston: No one has yet mentioned the use of the actual cautery for very severe forms of chancroid, and I should like to mention it as having been in our hands a real weapon of reliance in cases which were not to be cured by applications of phenol, nitric acid and other caustics. We have had to anesthetize the patient either locally or by gas, and then apply the actual cautery until the whole thing is burned out to a dry crisp. I have seen some chancroids which resisted one treatment of that kind, but a second treatment always cured them.

Dr. Irwin E. Colgin, Waco, Texas: I have used a high frequency spark, using an electrode which approached the roentgen ray, and have had some very good results, but I think Dr. Robbins' method is superior to this, due to the fact that the copper in 25 per cent. solution will act as a conductor. The ordinary effleuve from a high frequency electrode, using a long spark, cauterizes the surface, and I do not doubt that using an electrode in conjunction with the copper sulphate in 25 per cent. solution would cause the current to be carried to a greater depth and would sterilize deeper than if the electrode were used by itself.

Dr. F. W. Robbins, Detroit: In this class of cases we have tried copper sulphate, Dr. Morton's use of zinc chlorid, high frequency—all these various things alone, without unusual results. Is there any one here who has not seen a chronic ulcer of the inguinal region, after a bubo has been opened, that has run on and on, the patients looking tuberculous and the condition continuing in spite of everything done? One such patient was in the hospital and in bed from four to six weeks. We used argyrol crystals and tried to cleanse that wound as thoroughly as possible, but without success as far as results were concerned; the patient simply remained in the same condition with this miserable sore that would not heal. Within a week after combined treatment was instituted the ulcer had healed and he was well.

Dr. Aronstam mentions the former use of copper; that is all right; but whether they used any strong metalic caustic in connection with the high frequency I very much doubt, because in those days they had no knowledge of high frequency or violet rays.

As to the machine from which we obtained this current, I use the Wappler larger battery; Dr. Seabury uses the smaller portable one. One is just as effectual as the other.

Insurance Company Studies Automobile Fatalities.—The Metropolitan Life Insurance Company has made a statistical study of the death rate from automobile accidents which discloses the fact that the mortality rate from automobile accidents has more than trebled since 1911. In 1911 the death rate from this cause was 2.3 per hundred thousand; in 1916, it increased to 7.4. The rate for 1916 shows an increase of more than 37 per cent. over that of 1915. Nearly one third of those killed are children under 10 years of age. Another condition developed by this study is the fact that so far as the industrial population is concerned, more deaths are caused by automobiles than by surface cars, subway trains, elevated trains, bicycles and horse-drawn vehicles combined.

A MORE DELICATE WASSERMANN REACTION DEPENDING ON THE USE OF INCREASED QUANTITIES OF BLOOD SERUM *

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AND

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This paper is based on observations made on 200 patients examined serologically for evidences of syphilis. The work done has covered a period of one and one-half years. The material was obtained from the medical wards of St. Margaret's Hospital. The data given represent our effort to develop a Wassermann technic which would check up in a larger percentage of cases with the clinical diagnosis of syphilis and which would enable us to attach some significance to the negative Wassermann reaction.

Our method consists essentially in the use of graded increasing amounts of blood serum and spinal fluid, each serum being tested in the following amounts: 0.1 c.c., 0.3 c.c., 0.5 c.c. and 1 c.c., while amounts of spinal fluid as high as 10 c.c. are used in a single test.

Our investigation shows that as much as 1 c.c. of serum may be safely used, and that a negative reaction with 0.1 or 0.2 c.c. of serum is of little or no value in excluding syphilis in the latent or inactive stage, such as locomotor ataxia. In the cases here reported, which required the use of increased amounts of serum to obtain a positive reaction, the diagnosis of syphilis could be made by other means, such as a history of chancre, the clinical findings and by tests of the spinal fluid. In fact, in not a single case that gave a positive reaction only when as much as 1 c.c. was used did we fail to obtain positive findings in the spinal fluid, such as a positive globulin test, a typical colloidal gold chlorid test, as well as a positive Wassermann reaction when a sufficient amount of fluid was used. Seldom, however, was it necessary to use to exceed 5 c.c. of spinal fluid.

Lange,[1] in 1912, was using as high as 10 c.c. of spinal fluid for a single reaction, but he was not using large amounts of blood serum. Kromayer and Trinchese[2] were using as high as 0.4 c.c. of blood serum in 1913, obtaining more specific results than with the smaller amounts.

We have tested over 2,500 blood serums in amounts as high as 1 c.c. This report is made on but 200, which we checked up by a complete examination of the spinal fluid, a complete clinical history and a careful physical examination.

Of the 200 cases, 143 were known syphilitic. There were forty-one cases of paresis, forty-eight of tabes dorsalis, twenty-nine of cerebrospinal syphilis, seven of congenital syphilis and eighteen cases of syphilitic heart involvement. Eighty-three of these gave complete inhibition of hemolysis with 0.1 c.c. of blood serum; twenty-two gave partial inhibition when 0.3 or 0.5 c.c. was used. In fifteen there was no inhibition until done with 0.5 c.c., and in eighteen cases it was necessary to use 1 c.c. before any degree of inhibition was noted. Six blood serums were negative when 1 c.c. was used. Five of these were long standing inactive cases of tabes, the other being a case of congenital syphilis.

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* Read before the Section on Pathology and Physiology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Lange: Berl. klin. Wchnschr., 1912.

[2] Kromayer and Trinchese: Med. Klin., 1912, 8, 404.

It is to be noted that if only the ordinary small amounts of serum had been used, a total of but 59 per cent. positive would have been obtained; while, when 0.5 c.c. was used, the percentage was increased to 74 per cent., and if an amount as high as 1 c.c. was employed, 96 per cent. gave fixation of complement. This is a degree of specificity which has not heretofore been approached.

Of the 200 cases, forty-seven gave no suspicious history, and there were no physical findings suggesting syphilis. None of these gave any inhibition of hemolysis with 0.1 c.c. of serum; two gave a ++ reaction with 0.3 c.c., and ++++ when 0.5 c.c. was used. These were, clinically speaking, cases of chronic nephritis. Three gave complete inhibition of hemolysis with 0.5 c.c. One of these patients had auricular fibrillation, one had typhoid fever, and the other nephritis. Two gave a partial inhibition with 1 c.c.; one was a patient with multiple sclerosis, and the other was a pneumonia patient. One gave complete fixation of complement with 1 c.c., negative in less amount, this being a case of multiple sclerosis. There were, of course, cases of latent syphilis.

It is of especial interest to note that in those patients in whom we obtained a positive complement fixation reaction with the use of increased amounts of serum, both in the group of known syphilitics and those presenting no evidences of syphilis, a precipitation of the gold has always been obtained in the tubes characteristic of the syphilitic curve, along with a demonstrated increase in globulin and an increased cell count in those instances that manifested any activity of the process. Also a positive spinal fluid Wassermann test was obtained in all the instances in which the blood was positive with increased amount, in some cases as much as 10 c.c. or more of spinal fluid being required. It is often possible and practical to determine the minimal amount of spinal fluid necessary to use in obtaining a positive Wassermann reaction by the intensity of the colloidal gold chlorid test and the amount of globulin present.

The complement fixation test is essentially a quantitative one, probably dependent on lipoid substances resulting from antibody formation. The concentration of these substances depends on the activity of the process; hence the frequency of the negative reaction in those cases of long standing in which scar tissue is the immediate cause of the symptoms and the spirochetes to a certain degree inactive, as in tabes dorsalis. It is in this group of cases that, by the use of increased amounts of serum, we are able to obtain a larger percentage of positive results than we would with 0.1 or 0.2 c.c. of serum, which contains an insufficient amount of reacting bodies.

This technic indicates a more definite guide in the control of treatment, a graded increasing amount of serum being required to produce fixation of complement, depending on the intensity of the treatment. We have, of course, those cases of the latent and tertiary states in which prolonged, intensive treatment has failed to diminish the degree of complement fixation; however, it is the rule that cases under treatment become negative in the smaller amounts of serum first, requiring much longer courses to become negative when 1 c.c. is used.

REACTIONS WHEN INCREASING AMOUNTS OF BLOOD SERUM WERE USED

	Quantity of Serum Used				Remarks
	0.1 c.c.	0.3 c.c.	0.5 c.c.	1 c.c.	
Congenital syphilis, 7 cases:					Examination of spinal fluid showed positive globulin, typical gold curve and positive spinal fluid Wassermann in all cases. In two cases 5 c.c. of spinal fluid had to be used to obtain a ++++ reaction. In four cases cell count was below ten to the cubic millimeter. In only one case was the cell count above twenty-five.
1 case	++++				
1 case	++	++	++++		
3 cases	Negative	Negative	++	++++	
1 case	Negative	Negative	++	++++	
1 case	Negative	Negative	Negative	Negative	
Tabes dorsalis, 48 cases:					Diagnosis of tabes made by clinical manifestations and physical findings, increased globulin, typical gold and positive spinal fluid Wassermann in all cases. In 34 cases spinal fluid Wassermann was positive with 0.5 c.c. Largest amount required 5 c.c. In 22 cases cell count was below 10 to c.mm. Only 4 cases had counts above 50 to c.mm.
24 cases	++++				
10 cases	++	++	++++		
3 cases	Negative	+++	++++		
1 case	Negative	Negative	+++	++++	
5 cases	Negative	Negative	Negative	++++	
5 cases	Negative	Negative	Negative	Negative	
Paresis, 41 cases:					Clinical diagnosis made in all cases. In thirty, spinal fluid Wassermann was positive with 0.5 c.c. In only 6 cases was it necessary to use more than 1 c.c. Paretic curve with all cases and an increase in globulin. In but 4 cases was the cell count below 25 to c.mm.; in 12 it was above 100 c.mm.
38 cases	++++				
2 cases	++	++	++++		
1 case	Negative	Negative	++	++++	
Cases with heart involvement, 18 cases:					All were cases of aortic insufficiency. All gave precipitation of colloidal gold in syphilitic curve with increased globulin, and in 5 there was no increased cell count.
8 cases	++++				
4 cases	++	++++			
1 case	Negative	Negative	++++		
2 cases	Negative	Negative	++	++++	
3 cases	Negative	Negative	Negative	++++	
Cerebrospinal syphilis, 29 cases:					Diagnosis made by clinical manifestations and physical findings. Positive spinal fluid Wassermann in all. In fourteen cases it required more than 1 c.c. The colloidal gold test was positive in all cases, with increase of globulin. The cell count was below 10 to the c.mm. in 8 cases. It was above 75 to the c.mm. in but 4 cases.
10 cases	++++				
1 case	+++	+++	++++		
3 cases	++	++	++++		
1 case	Negative	+++	++++		
2 cases	Negative	Negative	++++		
2 cases	Negative	Negative	++	++++	
3 cases	Negative	Negative	Negative	++++	
1 case	Negative	Negative	Negative	+++	
6 cases	Negative	Negative	Negative	++	

Concerning the significance of a serum becoming negative with 1 c.c. of serum during the course of treatment, we can only say that this means much more than when only the ordinary small amount is used.

TECHNIC

At least 10 c.c. of blood should be obtained and as much spinal fluid as can be taken with safety, from 10 to 15 c.c., if possible. After the blood is centrifuged and the clear serum inactivated, it is transferred to a small centrifuge tube to which is added 0.1 c.c. of pure undiluted thoroughly washed sheep corpuscles, shaken and allowed to stand for one-half hour in the ice chest. The serum is again centrifuged, throwing down the sheep corpuscles, and the clear serum pipetted off ready for the test. In this way natural antisheep hemolysin is removed by absorption.

A titration for the proper unit of complement is made with a 2.5 per cent. suspension of sheep corpuscles, a known titer of immune rabbit serum and a 1:10 dilution of fresh guinea-pig serum. This is done in the presence of the different amounts of serum or spinal fluid to be used in the test: in the case of blood serum, 0.1, 0.3, 0.5 and 1 c.c. The serum is taken from a known negative case. When working with spinal fluid, the titration is done for amounts as high as 10 c.c. The spinal fluid being hypotonic for sheep cells, it becomes necessary to add sufficient sodium chlorid to make an isotonic solution.

The proper units of complement having been determined, the tests are set up, each serum being run in the amounts mentioned, namely, 0.1, 0.3, 0.5 and 1 c.c. Two units of complement are used for each different amount of serum, and each individual amount is controlled for anticomplementary properties. An alcoholic extract of human heart muscle, to which was added 0.2 per cent. of cholesterin, was used as antigen in this technic. Sufficient 0.9 per cent. salt solution is added to each tube, so that when the test is complete there will be 4 c.c. in each, for it is for this total amount that the titration for the complement unit is made.

One and one-half hours in a water bath at 37 C. is allowed for the fixation of complement, after which the unit of amboceptor and the sheep cells are added, and the final readings are made at one-half hour intervals for two hours. It is to be noted that with the larger amounts of serum the end-reaction is slower in taking place, but with an active amboceptor the final reading can safely be made at the end of two hours.

CONCLUSIONS

1. With larger quantities of serum a higher percentage of positive reactions is obtained.

2. With this technic, if the serum is fresh, 1 c.c. is not more anticomplementary than smaller quantities.

3. Normal serum does not cause complement fixation when 1 c.c. is used.

4. Our investigations corroborate the statement by Lange that in nonsyphilitic cases negative reactions are obtained in the spinal fluid with 10 c.c.

5. A negative reaction with an increased quantity of serum does not positively exclude latent syphilis. In 4 per cent. of known syphilitics there was no inhibition of hemolysis when 1 c.c. of serum was used.

6. A Wassermann test made with graded quantities of serum is not only an index of the activity of the syphilitic process, but is of value in indicating the progress of the case under treatment.

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ABSTRACT OF DISCUSSION

DR. B. GRUSKIN, Chicago: No doubt much significance should be placed on any modification in the technic of serologic tests, and any change in the technic that will lead to clearer and better understanding should be encouraged; but there is a limit to this and one must be sure before adopting a new technic whether this is not misleading to a certain extent. From what I gathered from the paper I see nothing different than the original complement fixation test, and the reason the laboratory men decided to use small quantities is because a lot of negative cases had proved positive when large quantities were used. I do not doubt the essayists' statements, but I know that I have tried the same technic in using large quantities and I have obtained slightly positive results in negative serums, due to the fact that large quantities of serums will bind complement to a certain extent. In conclusion I wish to say that unless there are clinical manifestations, or when the spinal fluid shows a high cell count, one must be very careful in pronouncing a case positive when large quantities of serum are used.

DR. J. W. SMITH, JR., New York: What was the amount of serum used in the serum control?

DR. S. S. HINDMAN, Toledo, Ohio: In these Wassermann tests with large quantities of serum, was the active serum used, making use of the native complement? I did not understand this point.

DR. JAMES EWING, New York: It is interesting to note the constant appearance of new serologic tests for syphilis. I have often wondered why some one did not revive the old Justus test, which consisted in a sudden drop in the hemoglobin following a mercurial inunction. This test enjoyed considerable vogue at one time. The great limitation to the significance of all these tests is that they are not specific. So long as their application is restricted to clinical medicine they may be of much service, but when the attempt is made to establish new rules regarding syphilitic infection and immunity or new conditions as to syphilitic origin, they must be rated as unsafe guides. Not long since it was announced, on the basis of Wassermann reactions, that syphilis insontium could be transferred to the third generation. In order to avoid serious errors I think pathologists in general feel that there is only one way of positively establishing the syphilitic nature of a lesion, and that is by the finding of *Spirochaetae pallidae* in the tissues.

DR. LLOYD D. FELTON, Baltimore: Instead of using a great amount of serum I have decreased the dose of complement. The Wassermann reaction is a quantitative fixation of the complement, so that the greater the amount of the complement used the greater the amount of the antibody needed to give a positive reaction. In the use of the method suggested by Bronfenbrenner—hypersensitive cells, these cells hypersensitized by 5 to 8 amboceptor units—one is able to reduce the dose of the complement to 0.01 c.c. of a 1:10 complement. This technic, in my mind, is equivalent to using a large amount of serum. The objection that this technic would make the test too sensitive cannot be sustained. It is not a question of giving too many positive reactions, but the danger of getting a negative result in serum which really is from a case of syphilis. As a rule it is easier to rule out a nonspecific positive reaction from a clinically negative case and much safer than to prove an individual has syphilis when the Wassermann reaction is negative.

DR. L. A. LYNCH, Kansas City, Mo.: From the beginning of this work we have been particularly watchful for nonspecific reactions. Although the technic described has been used with good results on over 1,000 blood serums and spinal fluids, we have included in this report only 200 cases, which have been checked up by a complete examination of the spinal fluid, physical findings and clinical history. We can safely say that when one is working with a hemolytic system with which he is perfectly acquainted, 1 c.c. of normal blood serum does not cause fixation of complement. The serum and spinal fluid are controlled in each of the different amounts used; also the serum is always inactivated. Both complement and amboceptor are titrated for each different amount of serum and spinal fluid used. Observing the necessary precautions, one can safely use larger amounts of blood serum and spinal fluid, obtaining a much larger percentage of positive results in true cases of syphilis.

THE ETIOLOGY AND DEVELOPMENT OF NEPHRITIS *

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SAN FRANCISCO

Before entering on a discussion of my subject I wish to state that I have included in the scope of this paper only cases in which the renal tissue showed well marked diffuse hematogenous inflammatory lesions. I have excluded all focal lesions of lesser importance, whether abortive forms of true nephritis, as the embolic focal nephritis described by Löhlein[1] and Baehr,[2] or other focal conditions which are coincident with vascular disease and in which the disease of the blood vessels evidently constitutes the more important feature.

The cases here spoken of are those which may be designated as cases of diffuse glomerulonephritis, because the inflammatory lesions of the glomeruli play an important part in this disease and form the one connecting link in an often bewildering multiplicity of other developments. The more I study the situation both from an etiologic and a broad anatomic point of view, the more I become impressed with the more general applicability of this old term of glomerulonephritis, not only to those cases that have been commonly so designated (chronic parenchymatous nephritis, secondary contracted kidney), but also to many of those that used to be attributed to primary changes in the interstitial tissue (chronic interstitial nephritis, primary contracted kidney), or to primary changes in the blood vessels (arteriosclerotic nephritis). In this light, these various types of nephritis become mere different manifestations of one and the same disease. The differences that have been so carefully studied by the pathologic anatomists and have given rise to our complex, and, it must be acknowledged, often confusing nomenclature, naturally remain, but as purely descriptive subdivisions. They should be relegated to that point of relative importance to which they may still lay claim, and should not be permitted to cloud the real picture by the introduction of a mass of perhaps interesting but evidently subsidiary detail.

The idea that bacteria might be concerned in the production of nephritis may be said to date back almost as far as bacteriology itself. It found its simplest expression in an inaugural dissertation of Ernst,[3] who worked under Klebs in Zürich, in which it is stated that true nephritis, being a genuine inflammation, was probably due to infectious agents. The support given this theory by Ernst's actual observations naturally was far from adequate. He reported two cases of acute nephritis in pneumonia in which he demonstrated bacteria in microscopic sections of the kidneys and similar findings in an instance of chronic parenchymatous nephritis. It may be stated here that the more careful histologic examinations of a later date have failed to furnish additional proof along these lines except in rare, unusually severe cases, and bacteria, if they were present in sections, were observed not so much in the tissues as in the blood contained in the blood vessels as a part of a general septicemia.

Even before Ernst, in 1880, Kannenberg[4] had called attention to the fact that pathogenic bacteria might be encountered in the urine in cases of acute infectious diseases, "especially when they were associated with nephritis." Kannenberg also seems to have been among the first to emphasize the fact that tonsillitis is a very common cause of nephritis, and he says that in three such cases he found micrococci in close connection with the casts, with the epithelial cells and free in the urine, an observation which recently has been reported as somewhat of a novelty. Ten years later, Agnes Blum,[5] working under Eichhorst in Switzerland, made a careful study of the relation of various acute infections to nephritis, mostly of the acute type, but she expresses the opinion that infections may perhaps be more frequently the cause of chronic diffuse nephritis than was then commonly believed, and she mentions a case which clinically appeared to be one of chronic interstitial nephritis following repeated attacks of tonsillitis, and mentions a similar case, anatomically confirmed, following rheumatism and endocarditis.

In the same year (1890) some interesting experimental work was done by Mannaberg[6] with streptococci isolated from the urine of patients with acute nephritis of obscure origin. By means of intravenous injections of the cultures so obtained, he reproduced severe acute nephritis in dogs and in rabbits. Mannaberg had an idea that these streptococci were specific organisms, which affected the kidneys electively. He noticed also two important points: first, that although the streptococci produced the nephritis and appeared in the urine, they did not proliferate in the kidneys, and second, that if the nephritis became chronic, the streptococci were apt to disappear from the urine. Mannaberg's investigations and experiments were performed carefully with good modern technic and therefore deserve considerable attention.

A few years later (1894) Pernice and Scagliosi,[7] two Italian investigators, described the acute lesions which they observed in the kidneys of dogs, rabbits and guinea-pigs that had been inoculated either subcutaneously or intravenously with various bacteria (*Bacillus anthracis, Bacillus pyocyaneus, Bacillus prodigiosus and Staphylococcus pyogenes-aureus*), and came to the conclusion that their observations furnished the experimental proof of the existence of a form of glomerulonephritis caused by bacteria. Since inoculations of the toxins of these bacteria had much less effect on the kidneys, they concluded that the bacteria themselves played an important part in the production of the renal lesions. There was nothing specific about these experimental lesions, because they were produced similarly by different types of bacteria, among them even a nonpathogenic organism (*Bacillus prodigiosus*).

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* Read before the Oregon State Medical Association, Portland, Ore., June 28, 1917.

* From the Pathological Laboratory of the Leland Stanford Junior University School of Medicine.

[1] Löhlein: Ueber hemorrhagische Nierenaffektionen bei chronischer ulzeröser Endocarditis (Embolische nichteitrige Herdnephritis), Med. Klin., 1910, **6**, 375.

[2] Baehr: Glomerular Lesions in Subacute Bacterial Endocarditis, Jour. Exper. Med., 1912, **15**, 330; Am. Jour. Med. Sc., 1912, **144**, 327.

[3] Ernst: Zur Aetiologie der Nephritis, Inaug. Diss., Zurich, 1884.

[4] Kannenberg: Ueber Nephritis bei acuten Infektionskrankheiten, Ztschr. f. klin. Med., 1880, **1**, 506.

[5] Blum, Agnes: Ueber die Aetiologie der Nephritis, Deutsch. Arch. f. klin. Med., 1890, **47**, 193.

[6] Mannaberg: Zur Aetiologie des Morbus Brightii acutus nebst Bemerkungen über experimentelle bakterische Endocarditis, Ztschr. f. klin. Med., 1890, **18**, 223.

[7] Pernice and Scagliosi: Beitrag zur Aetiologie der Nephritis (Experimentelle Nephritis von bakterischem Ursprung), Virchows Arch. f. path. Anat., 1894, **138**, 521.

In his careful work on acute diffuse nephritis, Councilman[8] mentions the fact that in eighteen out of twenty-eight cases of acute glomerulonephritis, bacterial infection was found either in the kidneys or in other parts of the body. Fourteen of these cases were evidently streptococcus infections, and in eleven of them there was present endocarditis and general septicemia. Councilman states that bacteriologic examination did not reveal anything suggestive in his cases of subacute and chronic glomerulonephritis.

It is to be regretted that Asch's[9] interesting monograph on the influence of bacterial toxins on the kidneys is not accompanied by illustrations, because he seems to have obtained some remarkable results by the injection of dead pure cultures of bacteria into the abdominal aorta near the openings of the renal arteries. He introduced a catheter into the abdominal aorta from below through the femoral artery with the idea of injecting the bacteria directly into the kidneys by way of the renal arteries. He worked largely with organisms of the colon group.

The same idea has recently been utilized by Winternitz and Quinby[10] of Johns Hopkins, who have injected living cultures of *Bacillus bronchisepticus* directly into the renal artery of dogs with the following results: Three groups of experiments were distinguished: (1) those in which no demonstrable general infection occurs; the kidney, however, shows immediate and acute inflammatory lesions which rapidly subside and result in focal scars associated with intermittent albuminuria and cylindruria; (2) those which die acutely with fulminating renal lesion and an acute general infection; (3) those in which there was definite evidence of general infection as well as renal involvement. The first (the general infection) subsided, while the kidney changes progressed and led rapidly to functional impairment to such an extent that the organ was unable to maintain its efficiency after the other kidney had been removed. As shown in the illustrations which accompany the article, the lesions are those of acute, subacute and chronic glomerulonephritis with congestion and enlargement of the kidney in the acute cases and fibrosis and shrinkage in the chronic cases. The advantage in working on one kidney in this way is that one may produce severe lesions without necessarily killing the animal, and may then test the functional capacity of the injured kidney after it has reached the chronic stage, by removing the healthy kidney.

That it is not necessary, however, to inject the bacteria into the arterial blood stream in order to obtain the characteristic lesions in the glomeruli had already been shown by Le Count and Jackson, in 1914. These investigators injected rabbits intravenously with streptococci, and, as their photomicrographs show, produced very characteristic acute lesions in the glomeruli of the kidneys of some of their animals. Their results have been confirmed and amplified in our own laboratory.

Dr. E. W. Smith, under my direction, made repeated intravenous injections in rabbits of streptococci obtained from various sources, in order to study the more chronic changes which might arise in the various organs of these animals. Among forty-eight rabbits, fourteen developed renal lesions, and in seven of them the lesions were well marked and extensive. These seven rabbits lived from thirty-two to 142 days. That certain streptococci seem to have a fairly definite affinity for the kidneys seems to be shown by the fact that two pairs of these rabbits had been treated with the same streptococcus, one pair with a nonhemolytic diplostreptococcus from the tonsils of a case of acute duodenal ulcer, and another pair with a similar organism from an acute gastric ulcer. That this affinity, however, is not very strong is shown by the fact that the lesions in the other three cases were due to different streptococci, and that in other rabbits the same streptococci did not produce any renal lesions. None of the streptococci which caused severe renal lesions in the rabbits were obtained from cases of human nephritis, although we used several such in the experiments. The lesions produced in the glomeruli were very characteristic of acute and subacute glomerulitis, as shown by the accompanying illustrations. The lesions were quite diffuse, so much so that in some of the specimens the great majority of the glomeruli were involved. The tubules contained blood and casts. The epithelium exhibited granular and hydropic, more rarely fatty degeneration. Some of the rabbits presented also well marked focal lesions in the interstitial tissue which, however, were probably due to spontaneous nephritis. Otherwise a moderate round-cell infiltration about the blood vessels was all that could be observed even in the animal which lived 142 days and received eleven inoculations. Three of the seven animals had developed endocarditis, and in three others the condition in the kidneys was associated with amyloid degeneration which is apt to follow repeated intravenous injections of all sorts of bacteria. The arteries in the kidneys and elsewhere were normal in all cases.

These experimental results obtained by us and others seem to prove that the suggestion made by me some years ago on the basis of my findings on human material, that the glomerular lesions in glomerulonephritis are probably embolic and due to the rapid lysis of the bacteria within the vascular loops of the glomeruli, is probably true. The type of bacteria concerned does not seem to be of much importance, provided they possess certain endotoxins which become liberated on lysis. Asch's experiments seem to show that the same results may be obtained with dead organisms as with living bacteria. In the human being we have reason to believe that streptococci, colon bacilli, influenza bacilli and probably other bacteria may act in this way, although streptococci seem to be by far the most common organisms concerned in the causation of human nephritis.

The definite knowledge of the importance of streptococcic infections in acute and subacute glomerulonephritis and much of our modern knowledge on nephritis we owe to Löhlein's[11] careful anatomic and clinical investigations. His observations have been abundantly confirmed since, and are thoroughly accepted in Volhardt and Fahr's[12] important monograph on nephritis. It has also been gradually recognized that the most dangerous forms of nephritis are those associated with streptococcic infections of the tonsil, in which cases the persistence and recrudescences of the renal disease are probably due to the persistence of a septic focus in these organs. Similar results naturally may follow when there is a persistent septic focus elsewhere, and especially when the bacteremia is aggravated by septic endocarditis; but the latter is by no means necessary. I have been suspicious from the beginning of my investigations that chronic nephritis might also be due to such continued septic processes, and I believe that a careful clinical and anatomic study of such cases bears out this supposition.

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[8] Councilman: Anatomical and Bacteriological Study of Acute Diffuse Nephritis, Am. Jour. Med. Sc., 1897, **114**, 23.

[9] Asch: Ueber den Einfluss der bakteriellen Stoffwechselprodukte auf die Niere, Strassburg, 1904.

[10] Winternitz and Quinby: Experimental Nephropathy in the Dog. Lesions Produced by Injection of the Bacillus Bronchisepticus in the Renal Artery, Jour. Urol., 1917, **1**, 139.

[11] Löhlein: Ueber die entzündlichen Veränderungen der Glomeruli der menschlichen Nieren und ihre Bedeutung für die Nephritis, Arbeit aus dem path. Inst. zu Leipzig, 1907, No. 4.

[12] Volhardt and Fahr: Die Bright'sche Nierenkrankheit, Klinik, Pathologie and Atlas, 1914.

I shall now attempt to sketch briefly the development of the different forms of glomerulonephritis.

I. ACUTE GLOMERULONEPHRITIS

The condition is usually due to some septic infection, preferably with streptococci arising in the tonsils or elsewhere. In the gross the kidneys are intensely congested, full of petechial hemorrhages, swollen and often quite edematous, so that they may be considerably enlarged. The capsule is tense and peels off readily. The glomeruli are intensely inflamed, permitting the escape of albumin, blood and leukocytes into the capsular space and the tubules. The connective tissue is in a state of inflammatory edema and is also full of leukocytes. The epithelium of the tubules is more or less degenerated, and these are filled with casts. The urine is usually scanty, but sometimes increased in quantity, and is naturally loaded with albumin. It is full of casts and leukocytes and sometimes contains blood in sufficient quantity to be easily seen with the naked eye, while at other times the amount is so slight that it has to be searched for with the microscope. Sometimes there is complete anuria. A bacteriologic examination of the sediment, when obtained with proper precautions, often reveals the causative agent. Often there is injury to the capillary endothelium not only in the kidneys but elsewhere, and we then observe general edema. Unfortunately, this general edema is not well developed in all cases, and there is only a slight puffiness of the face, or even this may be missing. In the absence of general edema, the condition is apt to be overlooked, especially if the primary infection (the tonsillitis, for instance) is not very severe, and the patient may never consult a physician. The disease is especially common in children, and urinalysis should never be neglected in any case that seems at all suspicious, especially when the patients do not recover promptly and completely. A "generally run down" condition and continued anemia are important signs. This early stage apparently is the only one in which the disease may be cured by proper treatment of the septic focus, rest in bed and proper diet. Therefore, it certainly is better to examine 100 or even 1,000 urines unnecessarily than to miss one case. Unless the original septic infection kills the patient or the infection heals completely and the patient recovers, a subacute condition is apt gradually to develop.

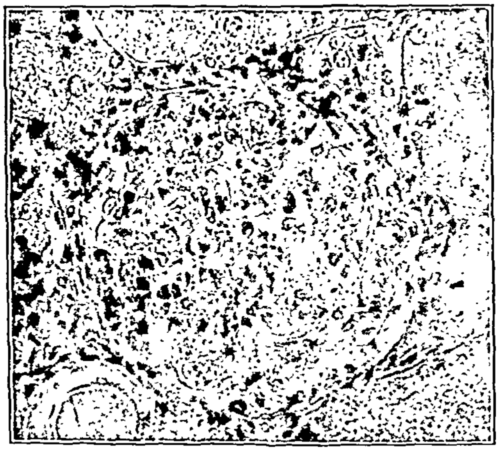

Fig. 1.—Acute glomerulonephritis in a rabbit that had received eleven intravenous injections of a pure culture of a long-chained hemolytic streptococcus obtained from the pleural exudate in a case of carcinoma. Glomerulus congested and infiltrated with leukocytes.

II. SUBACUTE FORM

These cases, however, often develop insidiously without preliminary acute attack, so that when symptoms arise it is impossible to ascertain the date of onset. The kidneys become even more congested and swollen, and the hemorrhages continue. The necrotic spots in the diseased glomeruli and the coagulated exudate in them gradually become replaced by cellular connective tissue, which eventually destroys the glomeruli completely and converts them into an inert mass of fibrous connective tissue. At the same time the inflamed connective tissue between the tubules begins to proliferate. In the later stages, when the connective tissue becomes more massive, evidences of shrinkage may make their appearance. The tubules still contain blood, leukocytes and casts. The epithelium usually exhibits very severe degenerative processes. In some of the cases the blood vessels in the kidneys begin to develop serious lesions which are especially well marked in the arterioles in the vicinity of the diseased glomeruli. They consist in a lateral thrombosis evidently due to injury to the endothelial lining, which process eventually may completely close these small arteries. Eventually organization follows, and a fibrous thickening of the walls of the small blood vessels results. The larger arteries may also be the site of a beginning fibrous thickening of the intima. The large veins in such cases may be entirely occluded by massive thrombi. The urine continues full of albumin, casts and usually leukocytes. Although the hemorrhages persist in the kidneys, the blood does not seem to be carried out so readily, but it can usually be found by repeated microscopic study of the sediment. While at first more or less scanty, the urine in the later stages may become thin and plentiful. Bacteria are more rarely found in the sediment except in early cases. There is usually more or less general edema, although in this form also edema may be missing. Headache, nausea and vomiting make their appearance, and there may be typical convulsions. The anemia commonly is severe and progressive. Neuritis optica with retinal hemorrhage may be observed, and in the later stages the blood pressure climbs up to from 160 to 180, even to 200 and more. This rise of pressure is possibly due to the irritative effect of the same substance or substances which cause the damage to the endothelium of the blood vessels, the irritation causing an increased tonus in the arterioles all over the body which forces up the general blood pressure. The rise of pressure certainly precedes any noticeable general anatomic change in the small arteries, and may persist for long periods of time without being followed by any such change. Whether or not the irritation is to be followed by anatomic changes appears to be purely accidental. It is interesting to note that with these exceedingly severe lesions in the kidneys the phenolsulphonephthalein excretion still may be fair (from 25 to 30 per cent. in two hours), in spite of the fact that the blood urea may go up to 100 mg. and more. These cases last for months and years with exacerbations and remissions. Sometimes the patients are fairly well for a long time and the condition is discovered only accidentally, or in the last stages, when severe symptoms begin to arise. The patients die of their septic condition, or more commonly of asthenia or uremia.

III. CHRONIC FORM

It is naturally impossible to draw sharply the dividing line between this form and the preceding one either clinically or anatomically. In this group are the largest number of cases. Since the publication of my last papers[13] on this subject, I have been able to find seventeen new cases of true nephritis among about 400 necropsies. One of these was an acute one following a streptococcic peritonitis after confinement, of two months' duration. Four were of the subacute type. One of these was caused by a streptococcic osteomyelitis of the sternum of seven months' duration, and three followed tonsillitis. The remaining twelve were chronic cases. In four of the latter the history and the examination were incomplete, usually because the patients entered the hospital in a moribund condition, or because a complete necropsy was not permitted. In the remaining eight there was either a definite history of severe, often repeated attacks of tonsillitis, with or without rheumatic symptoms, or a very characteristic condition of the tonsils was discovered at necropsy, which to me appears to be of great interest.

The tonsils in these cases were not enlarged; in fact, usually they were more or less shrunken. In several of these cases they were carefully examined by the clinicians and pronounced to be normal or practically so. At necropsy one finds them retracted behind the pillars of the fauces. The surface is smooth, more or less white and cicatrized, and the openings into the crypts and the supratonsillar fossa are much narrowed, often practically obliterated. When one squeezes these tonsils, grumose material and pus, often in large quantity, squirts through the narrow openings from the dilated pockets behind. In the pus one finds great numbers of diplostreptococci either in pure culture or mixed with other bacteria. The supratonsillar fossa especially is usually very much distended and full of purulent material, and its walls may be more or less necrotic, although in sections of such tonsils the epithelial lining of the crypts may be entirely intact. Such sections usually show also heavy bands of old scar tissue throughout the tonsils, the contraction of which caused the partial occlusion of the orifices of the crypts. These old "pus bags" probably keep the process in the kidney going by more or less intermittent activity, and I wish to emphasize again that this condition may be present without any knowledge on the part of the patient, and that it is difficult to discover clinically. Why such a condition, which undoubtedly is quite common in persons not afflicted with nephritis, should cause chronic progressive nephritis in some cases, chronic rheumatism in others, or both, or sometimes no general trouble whatever, is quite as difficult to explain as the experimental observation that if one injects rabbits intravenously with various strains of streptococci one sometimes observes a severe reaction on the part of the kidneys and sometimes none at all, nor does one always get the same effect with the same strain of bacteria.

The development of these chronic cases is usually very insidious. The course extends over many years. The original lesion in many of them undoubtedly dates back to childhood. The existence of the condition is often not noticed by the patient until quite late because the symptoms may not be pronounced and the patients are accustomed to them. The clinical history usually begins only a few months or at best a few years before death, when there is often quite a sudden change for the worse from a condition of apparently continued well-being. The kidneys at necropsy are always much shrunken, either smooth or granular or sometimes more coarsely lobulated. Whether they ever were swollen considerably at any stage of development of the disease appears to me doubtful. They show the characteristic microscopic picture of an advanced renal sclerosis with small remnants of badly degenerated or sometimes fairly intact hypertrophic kidney tissue. Even in this late stage, subacute lesions indicating more recent recrudescences may still be present. The remnants of renal tissue are often so exceedingly small that one never gets over wondering how the individuals have been able to exist so long before they finally die of the disease. The arteries in the kidneys are usually severely affected, but there are striking exceptions to this rule. There may be a good deal of general arteriosclerosis, but this also is by no means constant. The blood pressure is usually high (from 200 to 250) and there is a marked hypertrophy of the heart, but as I have pointed out before, there seems to be a group of cases in which extreme destruction of the kidneys is observed without hypertension or cardiac hypertrophy.

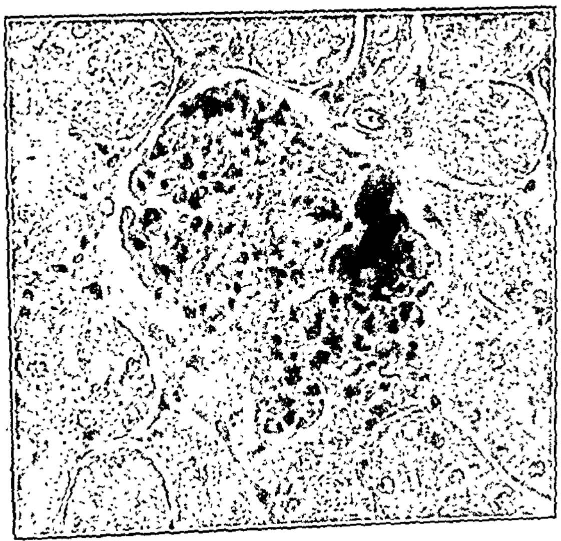

Fig. 2.—Recent glomerular lesion in a rabbit that had received seven intravenous injections of a pure culture of a nonhemolytic diplostreptococcus from the heart blood of a patient with acute leukemia. One of the loops contains a mass of micrococci, another is filled with a hyaline thrombus.

When these patients come to the hospital the urinary changes are usually well marked. While they are still fairly well, they usually have polyuria and hyposthenuria. Toward the end the amount of urine naturally decreases. At this stage there is always considerable albumin in the urine. Casts may be plentiful or appear in showers; occasionally there is a slight admixture of blood or leukocytes. The phenolsulphonephthalein secretion in the later stages is always diminished, sometimes practically entirely suppressed; toward the end the blood urea goes up with the appearance of true uremia and often reaches very high figures. Edema may be a prominent symptom, but there are the well known "dry cases." The first symptom which in many of these cases drives the patient to the physician is interference with the eyesight due to albuminuric retinitis. The anemia is often well marked and sometimes very severe. The temperature is often quite fluctuating, frequently subnormal. The pulse is usually high and the pulse rate varies greatly. The patients most commonly die in uremia. Sometimes the condition is aggravated, or sudden death is produced, by lesions of the brain, due either to vascular obstruction or to hemorrhage.

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[13] Ophüls, William: Nephritis: A New Series of Cases with Review of Recent Literature, The Journal A. M. A., Nov. 13, 1915, p. 1719; The Pathology of Nephritis as Illustrated by Thirty-Two Consecutive Cases, Stanford University, 1916.

The patients included in this last group vary so much in their rate of development, in the gross and microscopic appearance of the kidneys and in their symptomatology, that one can readily understand why both from an anatomic and from a clinical point of view numerous efforts have been made to subdivide this group into subgroups, according to whether, anatomically, the disease of the blood vessels in the kidneys or elsewhere plays a prominent rôle, or whether, clinically, the signs of cardiovascular disturbance predominate over those of renal origin, or vice versa. So far as I can see, and I have now studied about thirty cases carefully, both from the clinical and from the anatomic point of view, such a subdivision does not seem feasible. I acknowledge that the number is too small to arrive at any final conclusion. I wish to emphasize, however, that from this group have been rigidly excluded all cases in which anatomically the disease of the kidney was not well marked and extensive, which procedure, so far as the clinical histories go, has eliminated all the ordinary cardiovascular cases. I believe that the chronic cases collected by me correspond to Group 3 of Christian's[14] most recent clinical classification, and probably take in part of his Group 2.

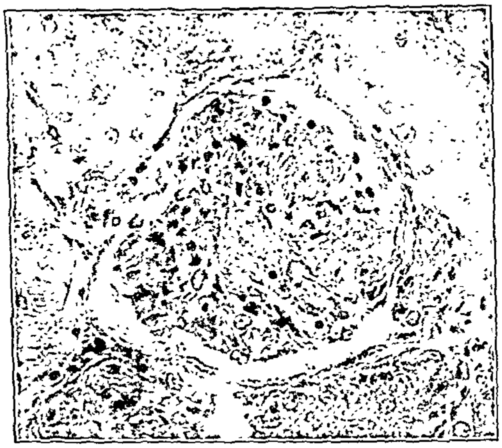

Fig. 3.—Later glomerular lesion in another glomerulus of the same rabbit, showing hyaline necrosis of a large part of the glomerulus and beginning adhesion to capsule.

SUMMARY

1. There is a well defined disease of the kidneys caused by general sepsis arising from some infected focus and often made progressive by the persistence of such a focus.

2. Since the glomeruli in this disease show the most *characteristic and constant* lesions, we may speak of it as glomerulonephritis, and as the lesions are so distinctly of an inflammatory character, as true nephritis.

3. The disease occurs in three forms: the acute, the subacute and the chronic type.

4. The characteristic glomerular lesions may be reproduced in animals by injection of bacteria into the blood stream.

5. The majority of cases in man are due to streptococci, but other bacteria may cause similar lesions in the kidneys and elsewhere.

6. Many of the chronic cases seem to be caused by a peculiar form of chronic suppurative tonsillitis due to diplostreptococcic infection.

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[14] Christian: A Consideration of the Clinical Classification of Chronic Nephritis, Cleveland Med. Jour., 1917, **16**, 223.

JUXTA-ARTICULAR BONE LESIONS OF THE HIP *

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The beginner in bone surgery is apt to think of the diagnosis of disease of the hip joint as a simple matter, but longer experience will convince him of his error. As pointed out by Gibney in 1884,[1] the diseases of the hip are many, owing to different infections and pathologic processes, and may be located in the joint, in the bone adjacent to it, or in the soft parts. Many affections which were formerly classed as hip disease or tuberculosis of the hip, especially since the wide use of the roentgen ray in diagnosis, have come to be recognized as distinct conditions. Such conditions, now classed as separate affections, are coxa vara and slipped epiphysis, lesions fairly well known and not difficult to diagnose. More recently, osteochondritis of the hip, Perthes' disease, or quiet hip disease (Taylor[2]), a perfectly benign affection, has been studied and separated from tuberculosis of the hip. While studying Perthes' disease, characterized by its mild symptoms and course, our attention was called from time to time to lesions in the neck of the femur or in the trochanteric region, benign in character and causing mild symptoms extending over a considerable period. These cases, usually brought to the surgeon on account of a persistent lameness with little pain or stiffness, could not be distinguished clinically from early osteochondritis; but the roentgen ray revealed instead of a flat and irregular epiphysis, a perfectly normal head and epiphysis with a spot of osteolysis (light spot) in the neck or trochanteric region.

These cases are often due to the process known as hemorrhagic osteomyelitis (Barrie[3]), *which never* results in pus formation. In another class of cases, *localized infectious foci with pus formation are found,* the so-called "bone abscess," which may result from the acute invasion of any pus-forming organism, or may arise from the lighting up of a local process in an old osteomyelitis. Several examples of roentgenographic bone spots, both of infectious and of noninfectious origin, will be given in this paper. Similar processes may occur about the acetabulum, but these will not be considered here, nor will malignant or benign neoplasms, tuberculous and syphilitic disease, or other rarer conditions which may produce local bone lesions in the neck and trochanteric regions.

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* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Gibney, V. P.: The Hip and Its Diseases, Birmingham, New York, and London, 1884.

[2] *Taylor, H. L.*, and Frieder, W.: Quiet Hip Disease, Surg., Gynec. and Obst., February, 1916.

[3] Barrie, George: Cancellous Bone Lesions, Ann. Surg., February, 1915.

It is well to know that lesions of soft parts adjacent to the hip, such as abscess of the soft parts, bursitis, and hematoma, may affect the function of the hip joint without affecting the bone, or even the synovial membrane. Acute and transitory conditions simulating an acute synovitis may result from strain or mild infections and pass away after a few weeks, leaving no impairment; but our discussion will be confined to the two classes of local bone lesions mentioned above, when occurring near the hip. They also occur near the knee and ankle and in the upper extremity, and may rarely be multiple; it is hoped to describe these conditions in later papers.

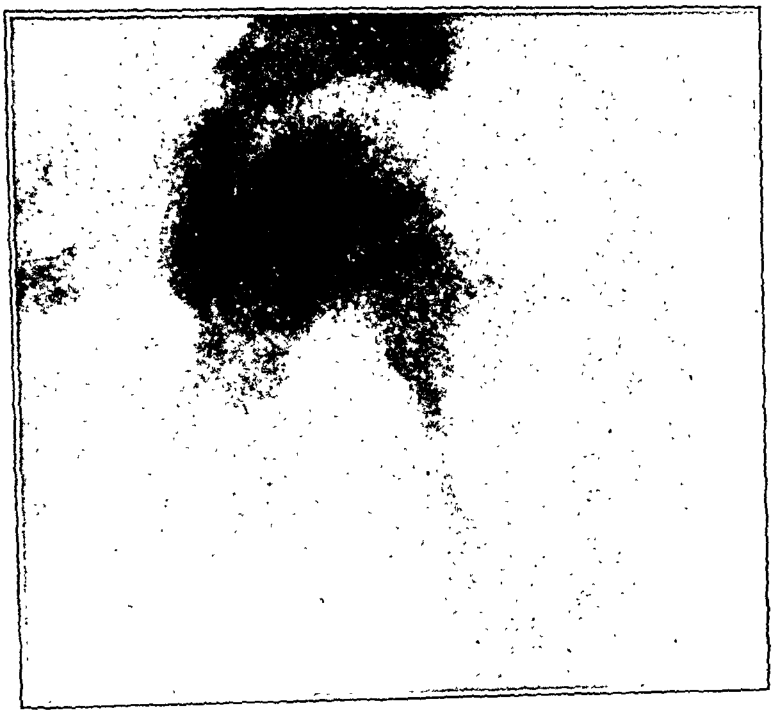

Fig. 1 (Case 1).—Hemorrhagic osteomyelitis in a girl, aged 7; there were mild symptoms for four weeks.

The one common symptom of the various hip conditions, at least when somewhat advanced, is lameness, and when a child suffering with lameness of longer or shorter duration is brought to the physician he should never rest satisfied until a positive diagnosis is made, no matter how mild the symptoms. This means that, besides a thorough clinical examination, the roentgen ray should be used in every doubtful case. Repeatedly we have seen, in cases of mild lameness with few or no other symptoms, the diagnosis established at once by the presence of a light spot on the roentgen plate.

Certain light spots are due to focal osteolysis caused by hemorrhagic osteomyelitis (Barrie). The process may exist without causing any symptoms, as in a case (Case 3) recently observed, in which a roentgenogram of the hips was made, simply because the boy had a spot in the lower end of the opposite femur. In several of these cases, the lesion was of large size and in an advanced stage, though the lameness had lasted only a few weeks. In many instances there is a history of a near or remote fall or injury. Usually the lesion is as large as a dime or a nickel before the advice of a bone surgeon is sought. By this time there is a little wasting of the thigh and leg muscles, and a little pain about the hip or knee. As the lesion becomes larger, the lameness and pain increase, the activity of the child is diminished, and his condition is not quite up to par, though often the general health is entirely unaffected; there is no fever. In a few cases there are sudden exacerbations with severe pain and inability to walk. The process may go on until the entire area at the base of the neck and the trochanter is involved, leaving only a cortex of egg shell thinness.

In two of our patients (Cases 8 and 9), the femur broke on slight violence, in both instances healing kindly under splinting. These cases are usually called tuberculosis of the hip and treated as such (overtreated), even by experienced diagnosticians; they are occasionally called sarcoma.

Among our cases there are several with spontaneous healing, with fibrosis or ossification and complete restoration of function, under general or symptomatic treatment and regulation of activity, and sometimes without treatment. In other cases, the cavity becomes larger with or without expansion of the bone cortex, and sometimes perforation occurs. A piece of the wall may come away as a flake, but there is no real sequestrum, no involucrum, and no pus formation. In these advancing cases evacuation of the focus with moderate curettage of the cavity, and in the larger ones the introduction of autogenous bone chips, give uniformly good results. The cavity becomes obliterated and usually reossified. When the cavity is opened it is found filled with reddish or grayish granulations, much like spleen pulp, or by a yellowish or grayish mass like custard, or by mottled fibrous material, or again by a straw-colored serum. The cavity may or may not have trabeculae or a lining membrane; it is sometimes multilocular. The mild curettage and the introduction of bone chips stimulate osteogenesis, and the result is usually perfect or nearly perfect restitution of structure and function.

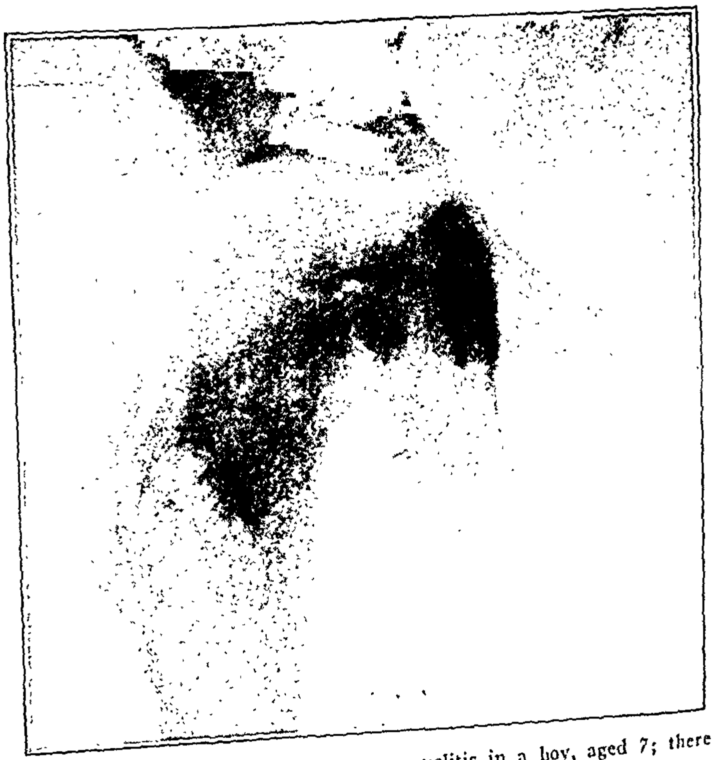

Fig. 2 (Case 3).—Hemorrhagic osteomyelitis in a boy, aged 7; there were no symptoms.

General hygienic management and a reasonable curtailment of activity, and short periods of splinting and recumbency when indicated, are effective in the milder cases without operation. The lesion and lameness may last for several years.

THE PATHOLOGIC PICTURE IN HEMORRHAGIC OSTEOMYELITIS (BARRIE)

In about 75 per cent. of our series of bone lesions termed hemorrhagic osteomyelitis, a definite history of initial trauma or injury has been obtained. These injuries, not necessarily severe, produce numerous minute fractures of some of the delicate bone trabeculae that compose a great part of the osseous structure. In turn, there follows a disturbance of the normal anatomic circulatory apparatus. As the venous supply is here composed of vessels that are without any muscular coat, the lack of support of trabecular framework causes dilatation of the lumen of the vessels, varicosities, venous stasis, and rupture with effusion. The size of the initial lesion, through solution of continuity, may now be increased by pressure from within, exerted against the very delicate normal surrounding osseous structure, causing inhibition of nutrition, rarefaction and further destruction of the bone trabeculae, with repetition of circulatory disturbance noted above.

Efforts at regeneration and restoration are brought about in the formation of highly vascular granulation tissue. As no virulent or infective process is here involved, the injury being due apparently to mechanical insult to tissues that are sterile, and as there is no great massive destruction of structure, the inflammatory process is of a mild type.

It is a well known fact that a low grade inflammation producing granulation tissue always causes proliferation beyond its given need. In these bone lesions it is found that, when the bony defect is filled, several changes take place.

1. If the chemotactic properties in the blood of the individual cause a sufficient stimulant reaction, the vascular granulations are converted into final osseous structure, and full anatomic restoration and architectural arrangement of tissues result.

2. The host may possess the power to produce a metaplasia in the lesion by converting the granulation tissue that fills the bony defect into fibrous structure only. In this event the further progress of the lesion is stayed. It is Nature's effort at cure. While the stimulant reaction of the blood is not enough to give normal restoration of structure, it marks the end of any further progress in the lesion. The fibrous metaplasia causes contraction and retraction of the former exuberant vascular granulations. This stage of the process gives a picture of a fibrocystic osteomyelitis. Absorption or disappearance of all connective tissue apparently sometimes occurs, leaving a bone cavity without any lining membrane, but with bony walls rather more dense than the adjoining outlying tissue. Such a cavity may contain sanguineous fluid only or, what is perhaps more frequently observed, a thin straw-colored fluid. The fluid is sterile, and pus is never present.

3. If conditions pertaining to the host are hostile to either of the foregoing reactions, we observe little or no change in the granulation tissue occupying the bony defect. The attempts at regeneration are feeble, apart from the proliferation of granulation tissue. A vicious circle is thus established. Overproduction of granulations causes pressure on the osseous structure that it is apparently unable to withstand. Nutritional inhibition of the framework produces rarefaction and further bone destruction, followed by circulatory disturbances and changes. This stage of the lesion, when it attains any size, is quite commonly wrongly termed, clinically and roentgenologically, "giant cell sarcoma." The histopathologic picture presented in this stage of the lesion is marked particularly by the presence of numerous multinucleated giant cells that are apparently performing their scavenger function of removal of débris. They are practically never present in the second phase of the lesion.

BONE ABSCESS

An infective bone spot may result from acute pneumococcus, staphylococcus, or other acute infection, when the invasion may be sudden, with fever, pain and constitutional symptoms. The symptoms are much more severe and the disability greater than in the noninfective bone lesions. The acute stage may pass over into a chronic stage, when the symptoms are moderate, more like those of a beginning hip tuberculosis, for which it is usually mistaken. Some cases begin without any acute symptoms and generally acquire a slight lameness which may persist for a considerable time, and cannot be distinguished clinically from either hemorrhagic osteomyelitis or beginning Perthes' disease. The roentgenogram will help, but is not always decisive as between a benign bone spot and a bone abscess. If the cavity at operation is filled with pus, which, however, may be sterile, the lesion is a bone abscess.

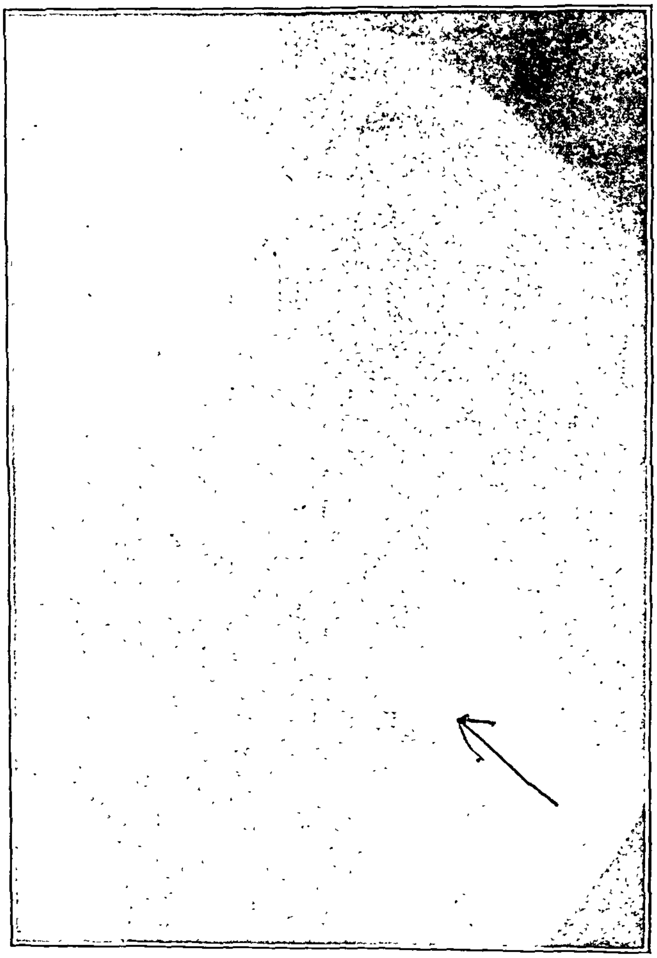
Fig. 3 (Case 4).—Hemorrhagic osteomyelitis in a boy, aged 17; there were mild symptoms for one year.

One of our patients (Case 13) was treated for several years for hip tuberculosis, when the bone abscess finally discharged itself in the trochanteric region, with later ossification of the spot and complete restoration of function. These lesions, when extrinsic and virulent enough, cause hip joint symptoms by secondary infection or through extra-articular soreness.

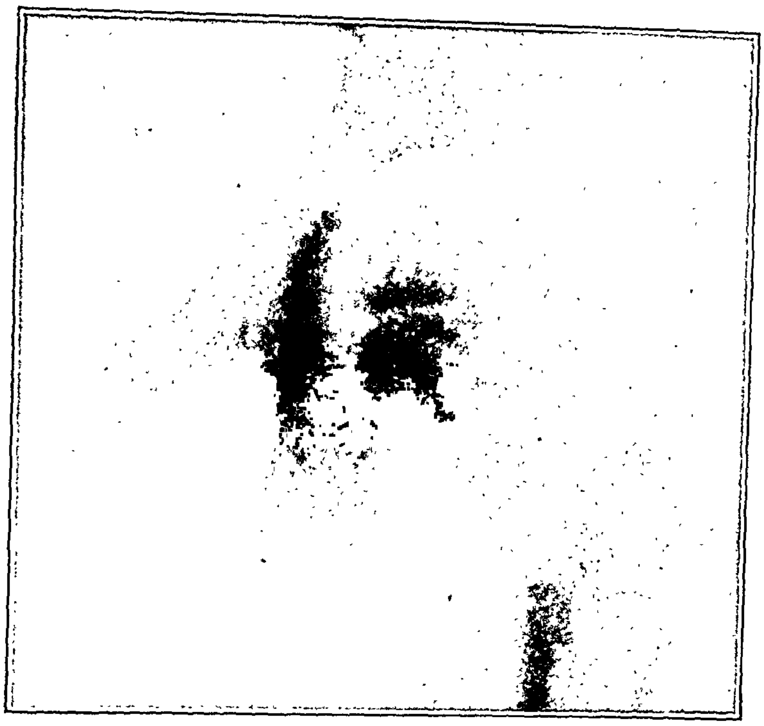

Fig. 4 (Case 5).—Hemorrhagic osteomyelitis in a girl, aged 7; there were symptoms for two weeks.

In another class of cases, an old osteomyelitis of the upper end of the femoral shaft or the trochanteric region may, after years of quiescence, light up into a local focus, showing a light spot on the plate (Cases 17 and 18). This is because bone once infected may become quiescent, but probably carries infective organisms ever after. They may light up locally after trauma or impaired nutrition, or without any visible cause, not becoming infected throughout but only causing one or more local bone abscesses.

The invariable treatment is to open the bone and evacuate, scrape out and disinfect the abscess. Pus is always found. The cavity should be wiped out with tincture of iodin, drained, and allowed to granulate from the bottom. Such cases do not always heal at once, but many heal in a short time, and most of them do so after a few weeks or months, while the pain and disability are quickly relieved.

Similar treatment is also suitable for tuberculosis confined to the trochanter or base of the neck, and such timely measures will often prevent an extension of the process to the joint.

COMMENTS ON ROENTGENOGRAPHIC APPEARANCES (BARRIE)

The roentgen-ray diagnosis of hemorrhagic osteomyelitis is not, as a rule, difficult to make. The plate shows a light spot with smooth outlines and no sclerosis; it may appear to be reticulated or multilocular. It is, however, frequently impossible to state positively, even with the combined clinical and roentgen-ray pictures, the exact stage which the lesion presents, that is, whether it retains its primitive form of a highly vascular granulation tissue mass (solid type so-called giant-cell sarcoma); whether the lesion is fibrocystic in character (metaplastic stage), or whether the contents of the localized area of osteolysis or bone disintegration are wholly fluid (so-called bone cyst). Our experience does not coincide with that of some roentgenologists, who state that they are able to differentiate between the roentgen-ray appearance of the solid and fluid lesions by the presence of trabecular division or septa. We have found identical roentgen-ray shadows in all stages of this lesion.

The roentgenographic picture in bone, exhibited by tuberculosis, syphilis, the acute infections, and benign and malignant neoplasms may readily be differentiated from the type lesions coming under the classification "chronic hemorrhagic osteomyelitis."

A conclusive and positive diagnosis regarding the exact type and stage of the lesion may be made only during operative interference. The light spot on the plate due to a bone abscess may be of irregular outline, may contain a sequestrum, or may be surrounded by sclerosed bone, but roentgenologically it is sometimes difficult to differentiate between a hemorrhagic osteomyelitis and a circumscribed medullary bone abscess that does not contain any sequestrum. The pus in such lesions is usually sterile.

Most of the cases on which the preceding study is founded were observed in the remarkably interesting material which has been at our disposal at the Hospital for Ruptured and Crippled, New York. Abstracts of the histories follow. In all, the descriptions of the lesions are founded on roentgen-ray plates.

CASES OF HEMORRHAGIC OSTEOMYELITIS OF NECK AND TROCHANTERIC REGION[4]

Case 1.—A girl, aged 7, Jan. 28, 1917, had a heart shaped light spot 1¼ by 2 inches in the left trochanteric region. Her health was good but she had stigmata of previous rickets. The patient slipped, four weeks before; this accident was followed by lameness and pain in hip and knee. At present all hip motions are painless and free; she has a moderate limp, and also slight atrophy.

Case 2.—A boy, aged 3, Sept. 24, 1914, had a light spot the size of a robin's egg in the left trochanteric region. There had been no injury; twelve days before he had moderate pain in the knee and could not walk. The pain was soon relieved by plaster-of-Paris spicas, which he wore eighteen months.

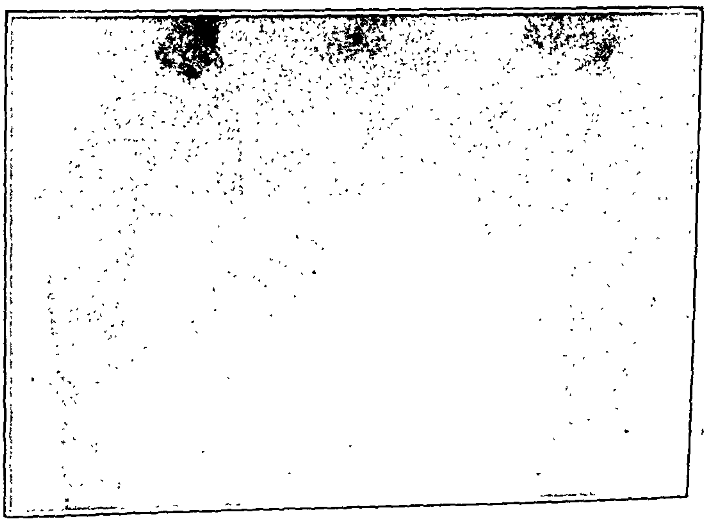

Fig. 5 (Case 8).—Hemorrhagic osteomyelitis in a boy, aged 6; he limped for four weeks. The roentgenogram was taken soon after the fracture through the pathologic area.

Case 3.—A boy, aged 7, April 24, 1917, had a light spot in the left trochanteric region the size of a robin's egg; there were no symptoms. The hip was examined with the roentgen ray for information on account of pain, swelling, and lameness in the right knee, beginning three years before. The patient was treated for tuberculosis of the right knee at

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[4] Cases 7, 8, 9 and 10 correspond to Cases 11, 12, 13 and 14 in Barrie's[3] paper, "Cancellous Bone Lesions," which gives histories and illustrations.

Neponsit Hospital, and wore plaster-of-Paris splints one and a half years. At present the knee function is perfect; there is no limp and no pain. A roentgenogram of the knee shows an extensive light area from changes due probably to hemorrhagic osteomyelitis. This is the first case of multiple lesions of this character observed.

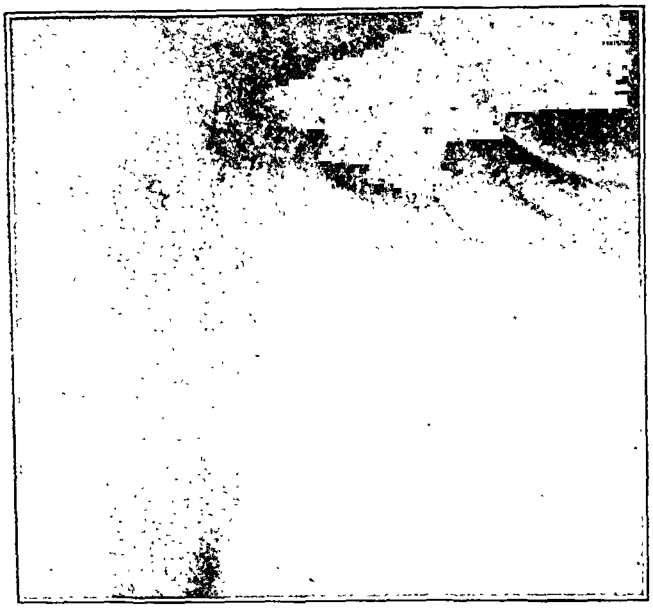

Fig. 6 (Case 12).—Bone abscess, secondary to chronic osteomyelitis of tibia of opposite side, in a girl, aged 9.

CASE 4.—A boy, aged 17, Sept. 14, 1905, had a light spot the size of a lima bean in the region of the left trochanter minor. He had been slightly lame for over a year; he had mild hip-joint symptoms, and was put on crutches and high sole, and hygienic management. A month later a roentgenogram showed an oval light spot the size of a dime near the lower trochanter; the bone of the neck was much thickened.

Feb. 22, 1906, the spot was increasing. The patient was running down, and the hip motions were somewhat limited. The patient was put under ether and the small cavity that was filled with granulations was scraped out. The patient has recovered perfect function of the leg and has remained entirely well.

CASE 5.—A girl, aged 7, Nov. 11, 1916, Dr. Whitman's case, had a multilocular light spot occupying the whole of the right neck, as revealed by a roentgenogram. The symptoms had existed two weeks.

CASE 6.—A boy, aged 11, July 12, 1914, had a light spot in the neck of the right femur. He had been hit by a horse one year before. He had pain in the right hip for six months, which was worse at night; he had limped for two months. A diagnosis of arthritis of the right hip was made.

Oct. 9, 1914, motion of hip was limited; the boy had worn spicas until two weeks before; there was no spasm; roentgenoscopy revealed a spot in the neck the size of a large pea.

March 8, 1915, the focus was curetted by Dr. Barrie. The patient had continued to wear a spica and to get worse. The pathologic report was extreme acute osteitis.

April 11, 1917, the patient was well, with excellent function and no limp. Roentgenoscopy was negative for spot.

CASE 7.—A girl, aged 8, October, 1913, had a light spot in the left neck and in the trochanteric region. The patient fell, bruising the left hip, six months before; she had had pain in the left hip and had limped for the last three months; there were night cries for two months; there was slight atrophy and limitation of motion. Clinical diagnosis was acetabular tuberculosis of the hip. A roentgenogram revealed a light area the size of a pigeon's egg occupying the base of the neck and trochanteric region to the cortex. The Wassermann test was negative. A plaster spica was applied in June, 1914, with increase in the size of the lesion and of stiffness at the joint. Operation was performed by Barrie, July, 1914. Exposure exhibited a hemorrhagic fibrocystic loose edematous mass easily removed and separated with the curet. There was free bleeding from the cavity walls, which had no lining membrane. The naked eye appearance of the lesion was that of the transitional stage of localized hemorrhagic osteomyelitis, in which the solid mass was undergoing fibrocystic changes.

Microscopic examination made from material curetted away revealed a variable histologic appearance. The bone trabeculae exhibited a slight degree of disorganization and the medullary tissue evidence of fibrosis. The principal feature appeared to be the presence of new-formed tissue composed for the most part of medium-sized fibroblastic cells. Here and there a multilobulated nucleus and a rare mitotic figure were seen. A few giant cells of the scavenger foreign body type were observed about the areas of disintegration, together with moderate hemorrhage, scattered foci of pigmented cells, and round cells.

In May, 1917, recent roentgenograms had shown reossification of the cavity. Three months before, the patient walked perfectly and was free from disability of any kind.

CASE 8.—A boy, aged 6, March, 1914, had large light area in the left neck and trochanteric region, as shown by roentgenogram. He had fallen down stairs a year before, bruising the left hip; he limped four weeks; there was no pain; there was tenderness over the trochanter, with slight limitation of motion. Wassermann and von Pirquet tests were negative. A plaster spica was applied. Several weeks later the patient was brought to the hospital unable to walk after a fall. Roentgenoscopy revealed a pathologic fracture through the light area.

June, 1914, operation, by V. P. Gibney, revealed a cavity without lining membrane filled with straw-colored fluid. A plate taken several months later showed union of fracture, filling in of cavity, and considerable reossification.

CASE 9.—A girl, aged 4, May 29, 1914, had a large, light spot in the trochanteric and adjacent regions, as shown by roentgenogram. Eighteen months before, the patient fell out of bed. Four weeks before, the child began to limp; there were no joint symptoms, and measurements were equal, but there was tenderness over trochanter.

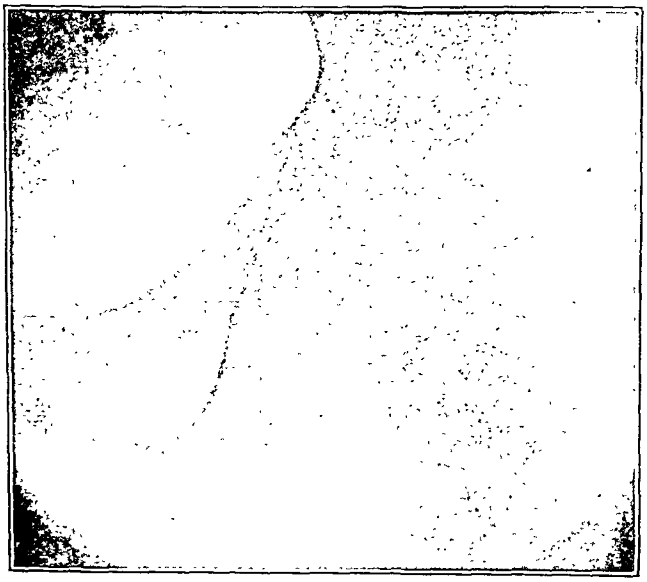

Fig. 7 (Case 13).—Bone abscess in a girl, aged 9; there were symptoms for three years.

Three days later the child tripped and fell and was brought at once to the hospital unable to move the leg. A roentgenogram revealed a fracture below the trochanter through the pathologic area.

CASE 10.—A girl, aged 18, Feb. 28, 1911 (patient of Dr. William Frieder), had multiple light spots in the right trochanteric region, which was enlarged. Six years before the mass had been curetted out, and a pathologic diagnosis of giant-cell sarcoma was made. Several Wassermann tests were negative. This patient was recently seen, ten years or more after the operation. She was in good health and walked well.

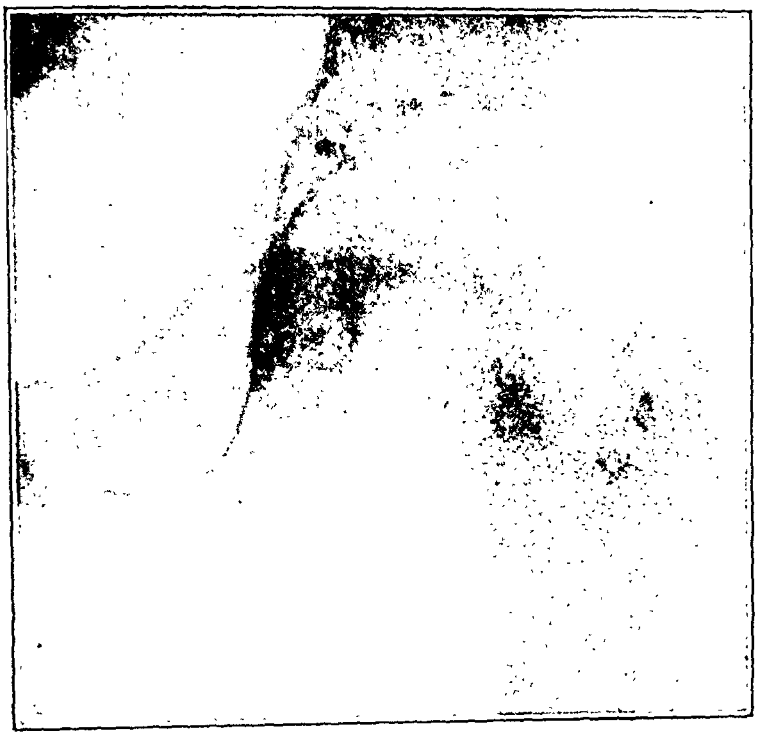

Fig. 8 (Case 13).—Roentgenogram taken one year and eight months later; there was a cure after spontaneous discharge of the abscess.

BONE ABSCESS CASES

Case 11.—A girl, aged 2, Feb. 15, 1915, had large focus at the base of the right neck, with sequestrum, the size of a pea. Limp had been noticed six months before; her general condition was poor; the right leg was one-quarter inch shorter than the left; there was slight limitation of hip motion. The Wassermann test was negative.

Case 12.—A girl, aged 9, April 8, 1916, had a small focus at the middle neck of the left femur. Five years before she had had osteomyelitis of the right tibia with four operations. She had had pain in the knee the last six months; lately there had been swelling in the left adductor region; there was considerable limitation of motion.

April 11, 1916, the neck of the femur was tunneled from below the trochanter by Barrie; sequestrum was removed; the abscess in the adductor region was incised.

Nov. 9, 1916, the sinus was closed, the patient walked easily, with a slight limp.

Case 13.—A girl, aged 6, Oct. 6, 1912, had a bone abscess in the right neck; she had had scarlet fever and pneumonia in 1910; her general condition was poor; there had been discomfort in the knee and night cries for two months. A diagnosis was made of tuberculous hip. She wore spicas for three years. An abscess several inches below the trochanter was opened in July, 1914; closed in December, 1916. A roentgenogram revealed a large light spot in the neck.

March 1, 1917, walking had been without limp or complaint for twenty months; her general condition was good; her legs were equal, hip motion was normal; roentgenograms were now negative for the spot.

Case 14.—A girl, aged 14 months, Oct. 26, 1911, had a bone abscess of the right neck; there were atrophy and pain in the right leg. The first diagnosis was poliomyelitis with history of attack four months before.

May 1, 1912, the child had night cries and was losing flesh; rotation was limited; the diagnosis was changed to tuberculosis of the hip. Soon after the roentgenogram showed a large spot in the neck and atrophy of head. The diagnosis was again changed to bone abscess.

March 5, 1913, the child was plump and rosy; she had almost full hip motion; she still walked lame, with no pain. May, 1917, the patient had been in a home for convalescent cripples for two years.

Case 15.—A boy, aged 9, Aug. 11, 1915, had a bone abscess of the left hip. He had pain in walking and at night. The attack came on suddenly four months before. There was some limitation of motion at the left hip. Roentgenoscopy was negative. The diagnosis was tuberculosis of the hip, and a plaster spica was applied.

Oct. 22, 1915, the thigh was flexed and adducted; two weeks before, the pain suddenly became severe and the patient could not walk; the hip was painful on motion; he was admitted to the hospital; the pain was relieved by traction in bed. A roentgenogram revealed a spot in the inferior lip of the neck, apparently containing a sequestrum.

Feb. 7, 1916, the patient was readmitted for pain and night cries; the abscess had appeared below Poupart's ligament and was incised.

July 14, 1916, the patient was free from pain, and was discharged in fair condition; a short spica was supplied and crutches were used.

Case 16.—A girl, aged 18, Jan. 29, 1916, had a bone abscess of the neck of the left femur. Twelve years before she had an abscess back of the trochanter, which healed in six months; she had had no further trouble until recently; she had had pain in the left thigh, knee and hip. She had no pain or stiffness on moving the hip. A roentgenogram revealed a light spot the size of a dime near the trochanter. Operation was advised and declined. The pain got worse and was considerably relieved by fixation in a spica.

Case 17.—A man, aged 23, Oct. 9, 1916, had chronic osteomyelitis of the upper end of the right femur, with bone abscess near the trochanter. Pain in the right hip and groin to the toes came on slowly five years before; the patient could not get off his chair for five weeks; he did not feel sick; since then he had had similar but milder attacks lasting about a week, every two or three months. Two years before, a sinus appeared 4 inches below the trochanter, which was still discharging. Two weeks before an abscess appeared below the trochanter. The patient's health is good; he is not lame, has no pain, with hip movements free. A roentgenogram shows a spot near the base of the trochanter.

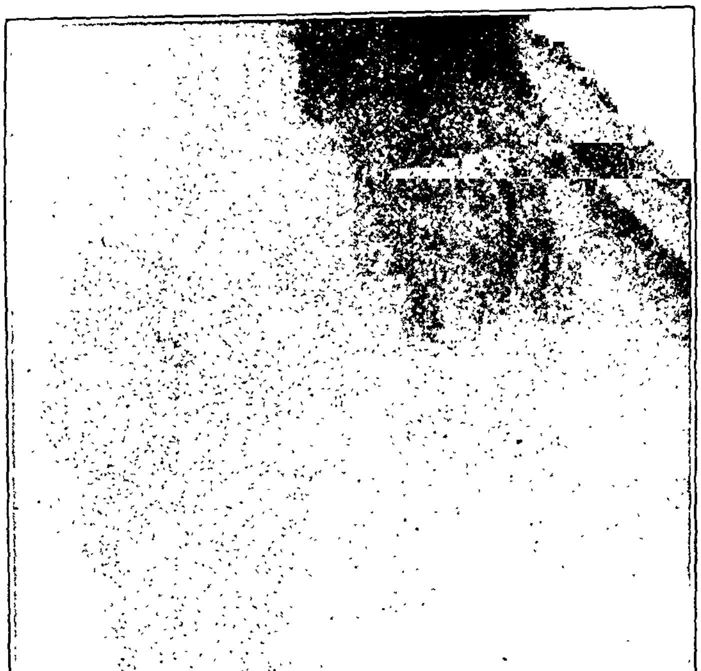

Fig. 9 (Case 16).—Bone abscess in a girl, aged 18; there were symptoms for a few weeks, but she had had abscess twelve years ago.

October 18, curettement of the focus was performed by Taylor. The pathologic report was chronic inflammation and fibrosis.

Case 18.—A man, aged 34, Dec. 4, 1916, had chronic osteomyelitis of the upper third of the right femur, with bone abscess. The patient had osteomyelitis of the upper third of the right femur at the age of 9 years, resulting in several sinuses, which did not entirely heal until eight years later. He was in bed one year at the beginning of the attack. He had been well and free from pain for seventeen years, until a month ago, when he had a dull pain in the upper part of the thigh, growing worse. There is acute tenderness at the outer and posterior aspect of the shaft of the femur below the trochanter and some induration. The leg is in good position with about 10 degrees of motion at the hip. The affected leg is a quarter inch longer than the other. A roentgenogram shows an area of bone induration, with a light spot the size of a pea in the middle.

Dec. 20, 1916, curettement of the focus was performed by Taylor.

March 1, 1917, the pain was relieved at once; the wound healed and the patient walked well.

SUMMARY

Local bone osteolysis may cause a light spot in the neck or trochanteric region on the roentgen plate. This may be due (*a*) to hemorrhagic osteomyelitis, which is a benign process usually running a chronic course with mild symptoms, notably lameness, and frequently ending in recovery, sometimes with and sometimes without an operation. Pus is never present; or (*b*) to a bone abscess with the formation of pus, which may run an insidious course with mild symptoms, or a more acute course with severer symptoms, and if evacuated and drained, usually ends in recovery with good function.

Both classes of cases are often diagnosed as hip tuberculosis, and sometimes as sarcoma. An early correct diagnosis enables the surgeon to simplify the treatment and save the adjacent joint by a timely operation, when its integrity is threatened.

125 West Fifty-Eighth Street—24 East Forty-Eighth Street.

ABSTRACT OF DISCUSSION

Dr. E. D. Oppenheimer, New York: I should like to know which of the patients with these local lesions had also lesions in other bones; also what is the relation between this disease and the general metaplastic osteitis described by von Recklinghausen. Does the pathologic picture resemble that of the other disease?

Dr. Arthur Steindler, Iowa City, Iowa: My understanding is that it is now being recognized that osteitis deformans and the osteitis fibrosa of von Recklinghausen are not entirely different diseases. The osteitis deformans (Paget) is a generalized form of the other. From the roentgenogram I had the impression that the cysts had developed on the basis of an old osteitis fibrosa. They had a hemorrhagic content. I should like to know the differential point between that form and the cases that we diagnose as the osteitis fibrosa of von Recklinghausen.

Dr. Henry Ling Taylor, New York: I would call atten-to the importance of distinguishing infective and noninfective bone spots near the hip from hip tuberculosis, and to their more favorable prognosis under proper management. Dr. Barrie will answer the pathologic question.

Dr. George Barrie, New York: The lesions of hemorrhagic osteomyelitis are single lesions; that is, they have been single in the cases observed, numbering about forty. Three fourths of our patients have given a history of initial trauma. I think probably 75 per cent. of the lesions that start as a hemorrhagic osteomyelitis later result in a so-called bone cyst. The remainder retain their primary pathologic picture of hemorrhagic osteomyelitis, which is frequently termed medullary giant-cell sarcoma. I think they are not sarcomas, because we know that the giant cells found in the mass are not tumor cells. Further, I have been able experimentally to produce the lesion simulating so-called medullary giant-cell sarcoma.

THE TREATMENT OF SCOLIOSIS *

FRANK E. PECKHAM, M.D.
PROVIDENCE, R. I.

From the earliest times, scoliosis has been written about and described in such a way as to make it the most complex subject in orthopedics. It would seem that if the explanations and descriptions could be reduced to simpler terms, the principles of treatment would be fewer and simpler, even though the ultimate results were still difficult of attainment. Rational treatment of any disease or abnormal condition is founded directly on etiology and pathology. In these later days, physiology is a little better known and is becoming of tremendous importance in giving a clearer understanding of many conditions.

In the first place, there must be a decision as to whether scoliosis is a deformity unaccompanied by disease of the structures involved, or whether there is a diseased condition of the bones and ligaments. My studies have convinced me that the bones and ligaments in these cases are in a softened condition, otherwise deformity of this type could not have developed. Also, it would seem to me that the term "scoliosis" should be used only to indicate a syndrome of a deformity dependent on such softened and yielding structures. I cannot agree with the idea that scoliosis is deformity without disease. There are thousands of children habitually assuming faulty positions every day, but only in the few does scoliosis develop, and in those few, the bones and ligaments are too soft to support the superincumbent body weight.

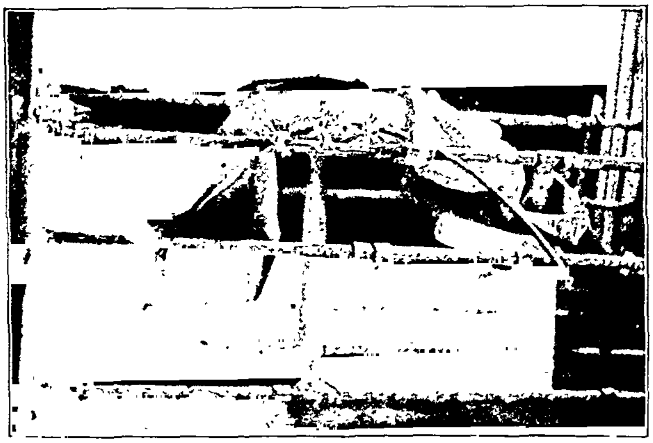

Fig. 1.—Patient in position on frame.

There are deformities simulating scoliosis. A child may have a short leg, thereby producing a tilting of the pelvis, in consequence of which curves appear in the spinal column and one shoulder is carried lower than its mate. Raising the shoe on the short leg immediately corrects the deformity, thus demonstrating the absence of the syndrome of a "deformity dependent upon softened and yielding structures."

Case 1.—A mill girl consulted me complaining of a low shoulder and a curved spine. She had been carrying a heavy basket every day in her work and always on the same shoulder. A change of occupation was followed by a restoration to correct form. Here also there was entire absence of the syndrome. These cases, therefore, are not real scolioses, and some other nomenclature should be applied, possibly "pseudoscolioses."

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* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Case 2.—A young married woman with a moderate deformity of the spine presented herself with the following conditions: Her first child was 4 months old and very greedy. In this way, the strength of the mother had been much diminished. One shoulder was low, the spine was becoming curved, and there was an increasing amount of pain in the back. In other words, calcium metabolism had been interfered with. As I did not wish to apply a plaster jacket while the breasts contained milk, the advice was given to wean the baby and report for a jacket when the milk had completely disappeared. Here was a developing deformity dependent on softened and yielding structures; in other words, a scoliosis. This patient waited about three months before returning, at which time the back had completely straightened, the pain had disappeared, and the young woman presented every appearance of perfect health.

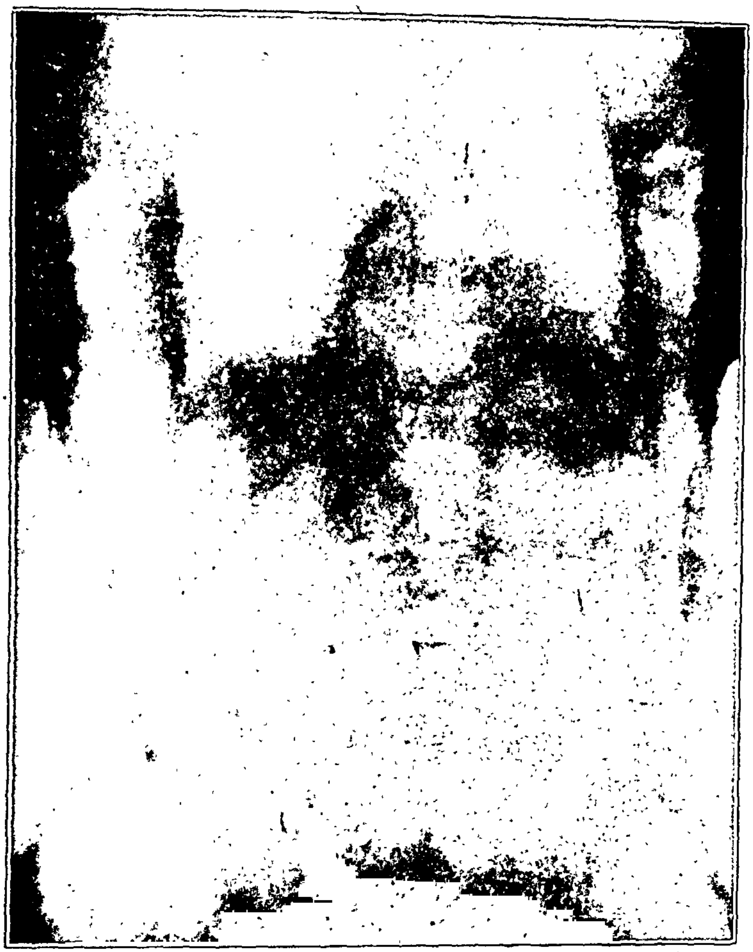

Fig. 2 (Case 3).—Condition, March 24, 1917.

I have previously reported the case of a girl, aged 7, with a severe grade of scoliosis due to much softened bony and ligamentous structures following an attack of influenza, and another presenting the condition of hypothyroidism. Here the deformity disappeared, under the administration of thyroid extract.[1]

The foregoing cases appeal to me as representing the difference between a real scoliosis and what perhaps might be considered a pseudoscoliosis, the one without disease of the involved structures, the other with. Deformity of the spine following an infantile paralysis might be termed a paralytic scoliosis, just as, similarly, we speak of a paralytic clubfoot.

If the hypothesis be accepted that scoliosis is dependent on a softened condition of the bones and ligaments, due presumably to some interference with calcium metabolism, then it seems fair to consider that it is the downward pressure of the head and body weight on this disease-weakened structure which produces the deformity. The comparison should not be with a clubfoot, but with a bow-leg or knock-knee; in other words, softened bony structures yielding to superincumbent body weight.

The etiologic factor then becomes the process which interferes with calcium metabolism. This may be rachitis, infections (including autointoxications), or the rapid growth which sometimes takes place in adolescence. The physiology of the endocrine organs is of great importance, and the thyroid gland, in particular, is supposed to preside over calcium fixation. When these physiologic processes go wrong, trouble arises.

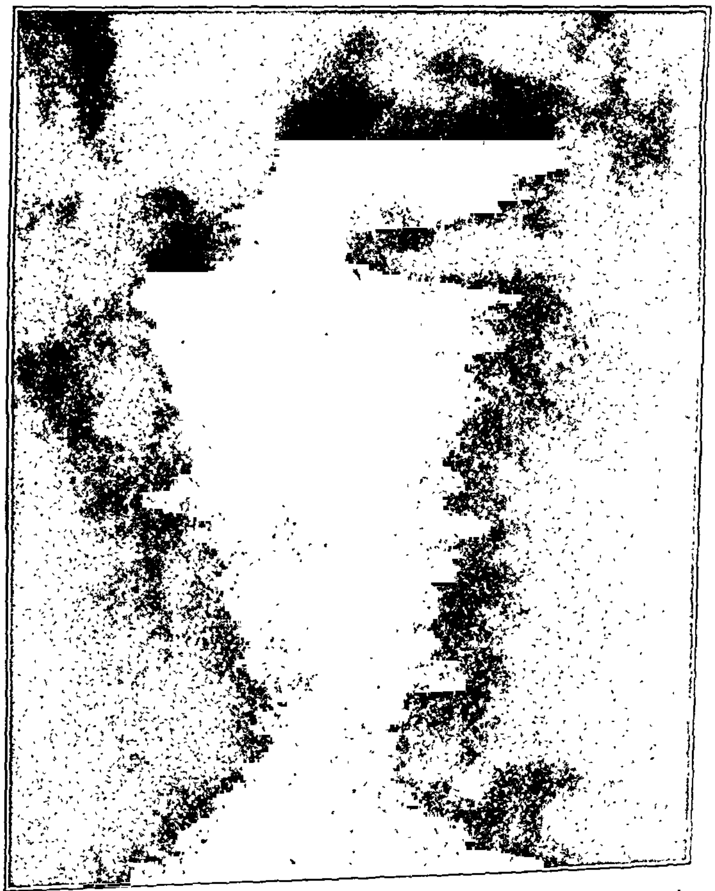

Fig. 3 (Case 4).—Spine of a girl, aged 18, before beginning the present form of jackets, Jan. 6, 1916.

These are some of the factors which produce a softening of the vertebrae and ligaments. These vertebrae and ligaments, yielding to the superincumbent body weight, become pushed downward and thus the deformity of scoliosis is produced. It is a scoliosis from the earliest stages. There may be different degrees of severity, both of symptoms and of deformity, but it is scoliosis all the way through. The duration of this softened condition usually extends through quite a period of time, and it is the treatment of this condition to which sufficient attention has not been given. This is pure physiology. In cases of hypothyroidism, the thyroid gland may be indicated. In the rapid growth of adolescence when there has been no scoliosis, but the symptoms have been backache and headache, swollen eyelids, the entire lack of strength and often the appearance of stupidity, the administration of thyroid extract will usually produce the desired result. One case referred to above, in which scoliosis was present in addition to all of these symptoms, the deformity disappeared, as illustrated in the original article. In other cases when it was uncertain what process was going on, I have used the mixed gland tablets. With more definite knowledge along these lines, much better physiologic results must be obtained.

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[1] Peckham, F. E.: Am. Jour. Orthop. Surg., December, 1916; Rhode Island Med. Jour., January, 1917.

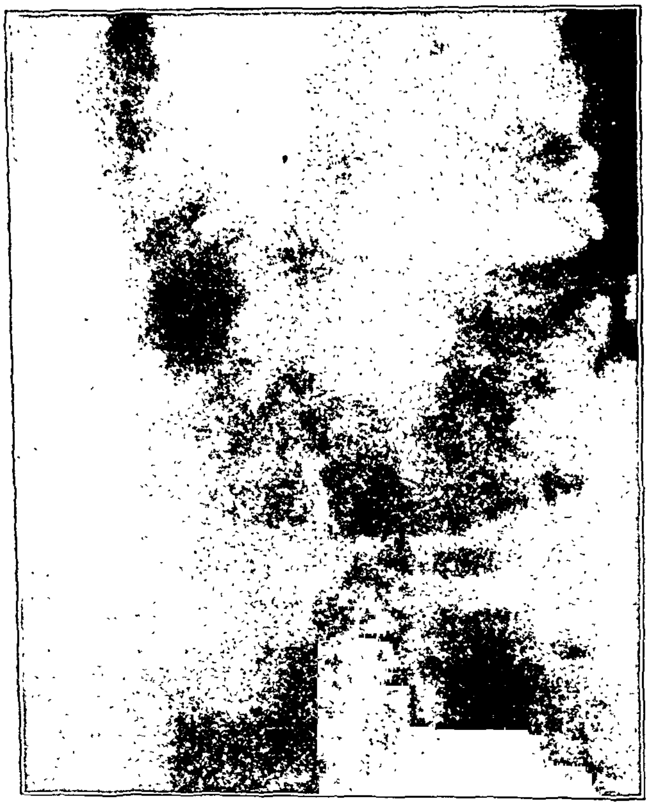

Fig. 4 (Case 4).—March, 1916; second jacket.

Regarding the mechanical treatment, I have tried to make it such that these patients could continue their customary duties without interruption. Consequently some of them are attending school daily, others are working in the shops, and one stenographer is continuing her work without any difficulty. The patient is still placed face down over a curved frame (Fig. 1), so that the spine becomes lengthened and some of the curves are improved by the position alone. With the body in different degrees of flexion, rotary pulls are made, thus correcting as much as may be possible, and the patient still remain comfortable. Traction on head and feet, which was used in earlier attempts, has been omitted. It caused so much pressure on the stomach that nausea and vomiting resulted. In my work thus far, a new jacket has been applied once a month, in order to start all over again at frequent intervals, with the body in as good a position as the patient will tolerate.

Case 3.—J. S., first reported in May, 1916, is retained in plaster, as shown in Figure 2.

Case 4.—E. M., a girl, had practically attained her growth when the present method of treatment was begun. For the preceding year, other forms of jackets and braces had been tried, but the deformity was increasing, until in January, 1916, the condition was as is shown in Figure 3. Jackets have been reapplied monthly, and Figure 4 shows the condition in March, 1916. Figures 5 and 6 show the condition as late as April, 1917. She is now 19 years of age, and still improving. The last picture shows still further improvement, but came in too late for publication.

266 Benefit Street.

ABSTRACT OF DISCUSSION

Dr. Albert H. Freiberg, Cincinnati: Many years ago I was associated as assistant with the late Dr. J. Wolff in Berlin, at the time when discussion of the law of the transformation of bones was going on. It had been the theory of many before this time, twenty-five years ago, that cases of adolescent scoliosis, particularly, were produced by some softening disease of bone, which they used also to explain other deformities such as flatfoot and coxa vara, which they considered akin to rickets. So they spoke of adolescent rickets. Wolff came back at them with the argument that they were unable to produce any tangible evidence of its existence, and they were not able to do so. It is not fair to assume that there is no such distinction as that between attitudinal or postural and structural scoliosis. To any one who has examined persons in the third or fourth decade of life who have had a short leg uncorrected, with a curve of the spine, disappearing entirely when in the recumbent position, showing the absence of any structural change, and especially to any one who has made roentgenograms of such patients, as I have done, and demonstrated that no structural changes had occurred, it seems to be impossible that we should hold longer the belief that no such distinction should be made. That the one condition may pass into the other must, I think, be assumed for the present, but that they are distinct conditions must also, I believe, be assumed. Of course the old views regarding adolescent rickets were expressed when we knew nothing of endocrine physiology. We know little enough about it now to be willing to say that it is possible to tell in any case whether it is the thyroid, the suprarenal or the thymus, or simply a disturbance of the endocrine balance, which is responsible for such changes in the bones, which we assume, after a study of physiologic experiments, to result sometimes, at least, from a disturbance of the endocrine balance. I have had the experience, as many others have, of being surprised at a very marked difference in the response to treatment in physically similar cases of structural scoliosis. I have been unable to tell by the severity of the physical changes the degree in which the patient would respond to corrective attempts on my part. I have found

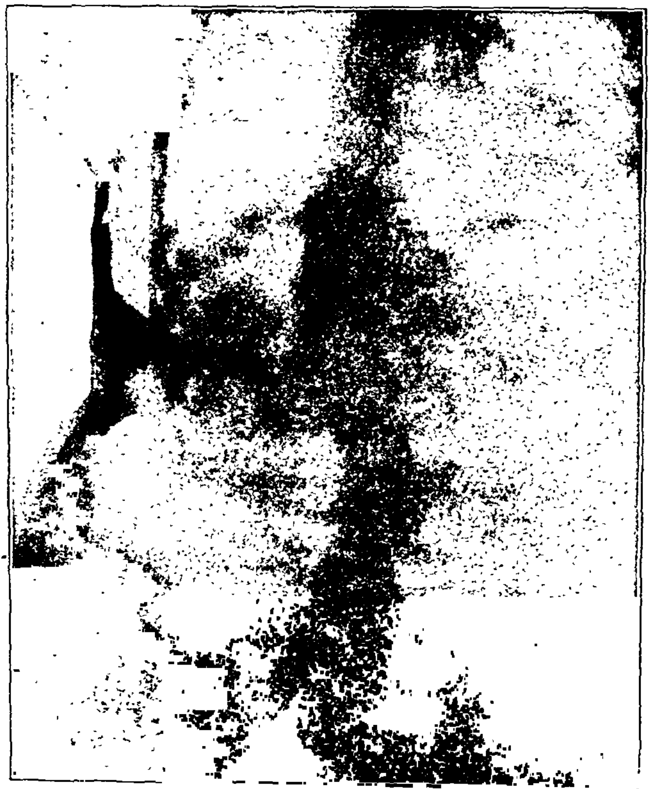

Fig. 5 (Case 4).—June 24, 1916; sixth jacket.

sometimes that comparatively slight deformities yield practically not at all, while at other times, rather severe deformity yields easily. It has been my assumption for some time, with a more or less theoretical basis, I will acknowledge, that the differences in these cases were to be explained by differences in that individual, as compared with others of similarly severe deformity, in the resistance of the tissues—perhaps not in the bone alone. I have for some time felt that in certain individuals there is probably a great disturbance of the whole endocrine balance that is to be considered in connection with the disturbance occurring at the time of puberty, and that these things may occur under similar circumstances at later periods in life. I should like to ask whether Dr. Peckham has reason to believe that there is any mechanical advantage in applying jackets with the patient face downward rather than face upward in a flexed position.

Dr. E. H. Arnold, New Haven, Conn.: I can do no better than to draw attention to the classification of deformities in Hoffa's book on orthopedics, which I think is serviceable at present. If he defines deformity as a change of shape in a bone or a joint, I think any or all of these symptom complexes must be scoliosis, if they are changes in direction of two bones. Therefore, there is no such thing as pseudoscoliosis, even in cases that show no change in bone structure. Hoffa classified the deformities into congenital and acquired, and divided both into contractures and weight deformities. Then you simply need to go down his list of contractures, section by section—skin, muscle tissue, nerve tissue, etc.—to find the particular kind. This classification covers a great many cases. I think it will throw light on a statement by Dr. Allen in regard to the possible use of scar tissue in holding a spine of the paralytic type; and it will help Dr. Hibbs and others in establishing the correctability of these cases by fusion, and also assist in the correction of weight deformities. These etiologic factors have always been, to me, the determining factors. If one has the symptom complex one must find the etiologic factor; and that has a great range in variety. We cannot always find out why bone softens. It sometimes softens from defects in the several internal secretions, and the deformities may be immense. Hoffa's table has always helped me to make the etiologic diagnosis. That, once established, leads to more intelligent treatment.

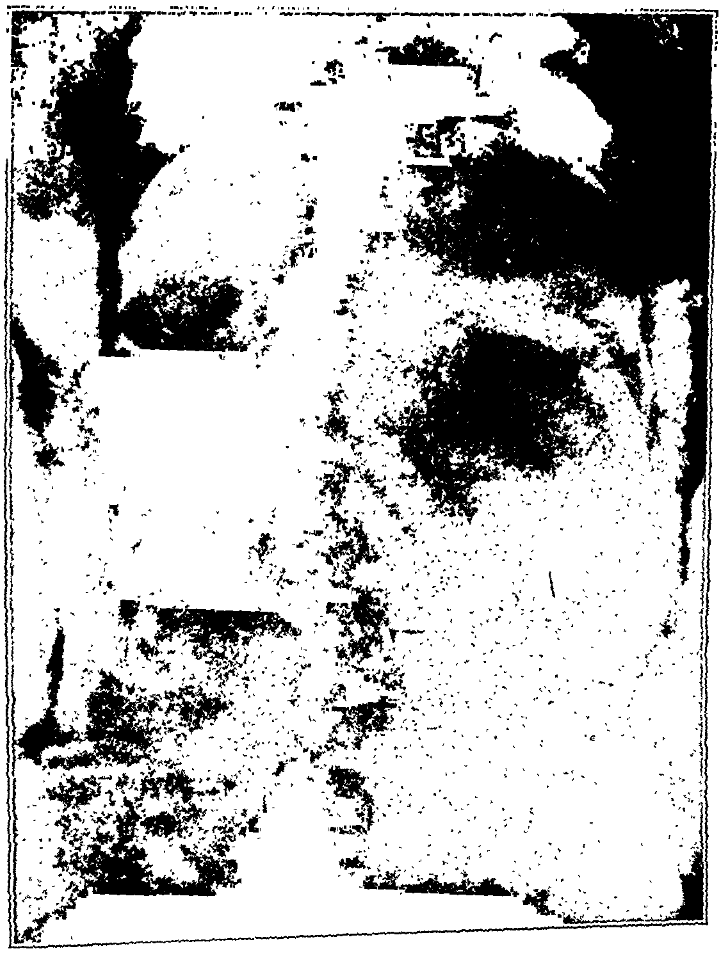

Fig. 6 (Case 4).—Condition of spine, April 16, 1917.

I also wish that Dr. Peckham would tell us how to apply these jackets. Dr. Abbott, some years ago, owing to some rather painful experience, changed his mind about the use of the heroic method of treatment. He told me that within one year he had changed from a corset that overcorrected markedly and was kept on for a long time, to one less heroic and more frequently applied, believing that the latter would give better results. I think that Dr. Peckham's is an attempt in that direction.

Dr. Royal Whitman, New York: I think scoliosis should be divided etiologically into many different classes. We all recognize the fact that certain weak individuals are predisposed to scoliosis and other postural deformities, but preliminary softening of the bone can hardly be a general cause. In order to support such a contention one must explain why five or six girls are affected to one boy. Also, why the deformity of scoliosis often increases in later years, long after any original softening of the bone has disappeared. Furthermore, all the postural deformities must be included. I am much interested in the paper quite apart from the question of etiology and should like to hear more of the details of the application of the jacket.

Dr. Virgil P. Gibney, New York: I should like to have Dr. Peckham say in closing what real evidence he has that the bones are softened.

Dr. Samuel Kleinberg, New York: The severity of the deformity affords no basis of judgment as to the outcome of treatment. We often see cases of mild rotation deformities that resist treatment for a long time and more stubbornly than the severe types. It seems to me that the long total curves are more amenable to treatment than the double curves, particularly the S-shaped curve to which I called attention some time ago. A curve with the dorsal deformity equal to the lumbar is difficult to correct by any known method. The types that have resisted all manner of treatment are the razorback deformity and those with congenital lesions. I have had twenty or twenty-five with congenital malformations of one or more vertebrae, and it is difficult to make any impression on them, even when the curve is very mild. When one has a malformation of the lumbar, or possibly the dorsal, vertebrae, it is impossible to make a serious impression on it. With the milder forms that have not existed a long time we not only can make an impression on the deformity, but correct it in great part by more than one method; not only by the Abbott method, but also by others; for instance, treatment in the erect posture. I have had some patients whom I have treated with jackets in the erect posture, in whom the deformity has become reduced and the patient improved as much as by the more severe method suggested by Dr. Abbott.

I should like to call attention to one type that has interested me, namely, the paralytic back. Paralytic scoliosis is often of a severe type. Can we gain a great deal by placing these patients on their back for a long time? I have recently had two patients who have improved a great deal. Both have been on their backs for six months, using corrective jackets, with a great deal of attention to the proper application of pressure over the deformity and allowing for expansion of the other side. I think it is a mistake to allow these patients to walk about.

Dr. James W. Sever, Boston: As a matter of fact, in the normal mechanics of the spine, as shown by the experiments carried out by Dr. Lovett, the dorsal spine in the flexed position increases very little in total length; but he has also shown that rotation is freest in the dorsal region when in the erect position and less in the flexed. The more the person is flexed forward, the more the spine is locked against rotation; and what is gained in the total length of the spine is very little. So I imagine that mechanically this position is largely an empirical one.

Dr. Frank E. Peckham, Providence, R. I.: The frame that I employ is the gas pipe frame, with cross strips of canvas placed between the sides and canvas going from one end of the frame to the other, so that the curve is kept tight. When the rotary pulls come it is easy to encircle the patient with plaster.

It appears to me as I perform my experiments that when the patient is laid down on a curved surface with the spine upward there is some lengthening and untwisting, simply from position; and if to that is added a rotary pull, more is accomplished. I hope this answers the question about the way of putting on the jacket.

It is rarely that bone softening is not found. We cannot, of course, cut these patients up in order to see how soft the bones are. I was interested to see a patient whose case I have reported straighten up on the administration of thyroid extract. There must have been something to cause restoration of form. Nature tries to grow a thing straight when it has a chance, and with restoration of normal physiology that was what took place. I had an interesting case in a little girl with a slight curve that absolutely resisted treatment. I could push it straight, but it would not stay. I gave her thyroid and she braced up immensely. Then she suddenly went to pieces physically and it was discovered that she had old roots in her gums. They were removed and she has braced up and done well since. Her spine is about straight, and is, I believe, on the road to permanent recovery. That was a mild case, but it was extremely resistant.

PAIN IN THE ARM: SUBDELTOID (SUBACROMIAL) BURSITIS

A FURTHER STUDY OF ITS CLINICAL TYPES, PATHOLOGY AND TREATMENT *

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NEW YORK

The statement may appear bold, even to a gathering of orthopedists, that most of the cases of persistent pain in the upper arm, so often treated for "rheumatism" and "neuritis," are surgical affections, at least in that they require mechanical treatment.

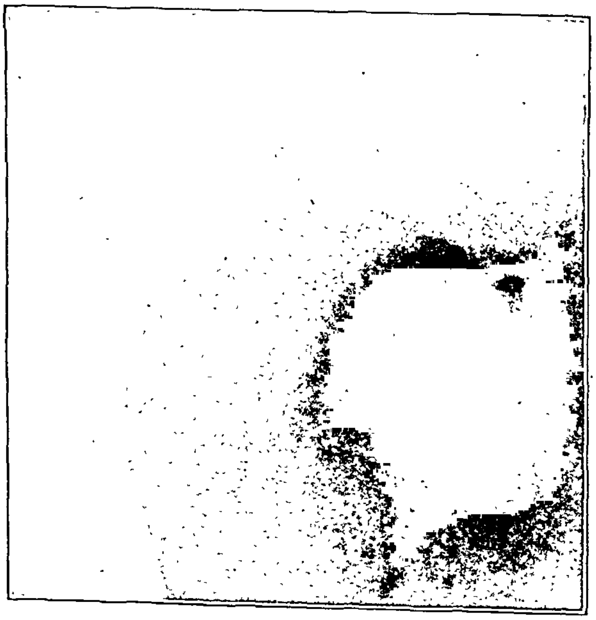

Fig. 1.—Large semifluid lime deposit beneath the bursa.

In the absence of arthritis or of symptoms in other parts of the body, the diagnosis of rheumatism, as an explanation of pain in the arm, is quite untenable, and need not detain us.

Brachial neuritis is a real condition but a comparatively uncommon one. When well established, it should be marked by motor, trophic or sensory signs, as well as by nerve tenderness. In all cases it is important to determine, by careful examination, including roentgenography, whether the neuritis is not simulated or produced by some other lesion. Pain in the left arm, usually referred especially to the flexor aspects of the elbow and wrist, may be associated with an anginal condition and, as such, may be symptomatic, among other things, of tobacco poisoning.

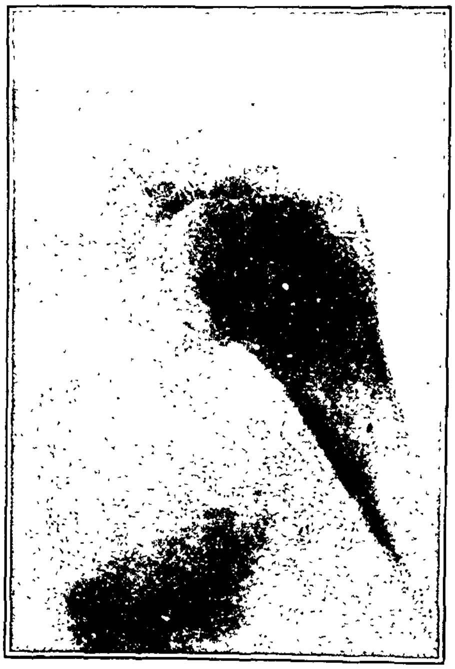

Fig. 2.—Very small deposit near the supraspinatus insertion.

Of the surgical conditions, aside from grosser and more evident lesions, that cause pain in the arm, we must bear in mind cervical rib, fracture of the greater tuberosity of the humerus (which may occur from comparatively mild internal as well as external violence), spontaneously reduced luxation of the shoulder, subluxation[1] of the shoulder (either of which may be produced, in some persons, by slight violence), mild sprain of the shoulder, periostitis of various origin, and neoplastic and inflammatory diseases of the bones, especially the humerus (among which chronic bone abscess, cortical or medullary,[2] should be mentioned as an occasional cause of severe, persistent pain).

Far more common than any or all of these causes of pain in the arm and sometimes, but by no means always, also in the shoulder, is subdeltoid (subacromial) bursitis. It is, indeed, so often the cause of the complaint, that it should be thought of first.

In earlier communications[3] concerning the pathology, pathogenesis and operative treatment of subdel-

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* Read before the Section on Orthopedic Surgery at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Brickner, W. M.: Traumatic Forward Subluxation of the Shoulder: A Clinical Entity, Am. Jour. Surg., February, 1915.

[2] Brickner, W. M.: Chronic Medullary Abscess of the Long Bones, Ann. Surg., April, 1917.

[3] Brickner, W. M.: Prevalent Fallacies Concerning Subacromial Bursitis: Its Pathogenesis and Rational Operative Treatment, Am. Jour. Med. Sc., 1915, **149**, 351; Shoulder Disability: A Further Study of Its Varieties and their Treatment, Interstate Med. Jour., April, 1915; The Location and Cause of Lime Deposits Associated with Subacromial Bursitis: "Excision of the Bursa," Am. Jour. Surg., April, 1916.

SYMPTOMS

The symptoms of subdeltoid bursitis are two: pain, and disability in shoulder movements.

Pain is present in almost all cases. It is usually referred to the upper arm, anteriorly or externally, from the level of the deltoid insertion toward or to the elbow. Very often, but by no means always, it is referred also to the shoulder, usually its outer aspect. Sometimes it radiates into the forearm, the hand, the fingers or the neck. The pain may be fairly constant, or intermittent, or only on motion. Often it is worse at night.

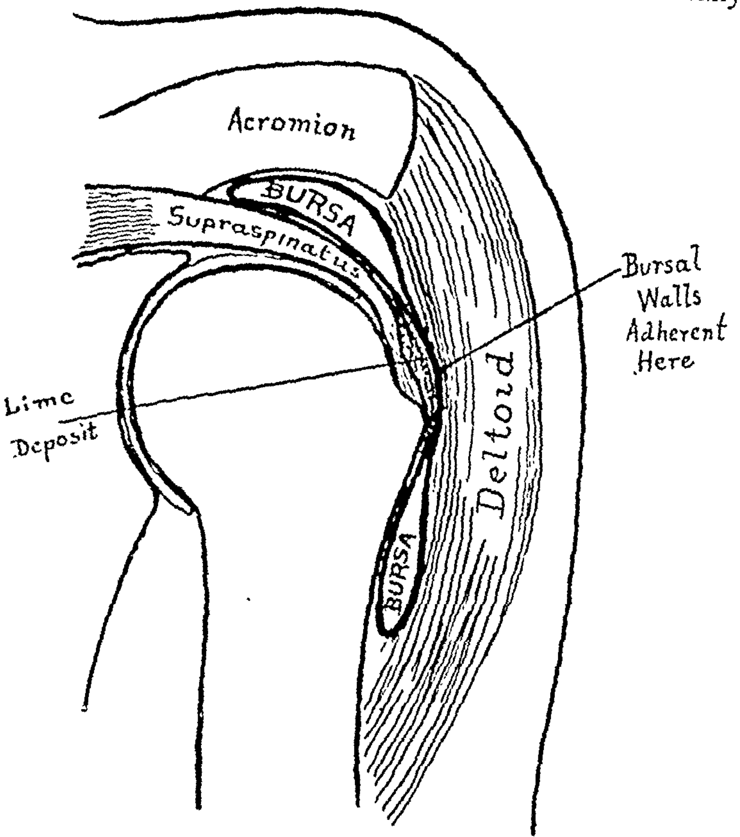

Fig. 7.—Diagram showing why many surgeons think they find the deposit in the bursa. Over the mass the two bursal walls are adherent and, unless separated by the operator, they are incised as one.

Disability of movement may be entirely absent, especially in chronic cases. In the early stage, however, abduction, at least, is inhibited or painful. This movement and internal rotation are chiefly affected, but in varying degrees. The patient may be able to raise his arm only a little, or he may be able to abduct insufficiently to brush his hair. The interference with internal rotation may be very great or moderate; the patient may be unable to put his hand in his trousers pocket, or unable to reach behind his back, or unable to raise his hand on his back to the opposite scapula. External rotation is usually little affected; but sometimes is much inhibited. The arm can be swung backward and forward. There is no ankylosis.

PHYSICAL SIGNS

In the early stage there may be slight swelling due to serous effusion. In most cases, when the patient presents himself there is no swelling. On the contrary, there is often to be noted a flattening, due to atrophy of the deltoid. The supraspinatus and infraspinatus muscles may also be atrophied. Pressure on the bursa below the tip of the acromion process is sometimes painful, but it is usually painless. The only tender point that I find quite constantly is anteriorly, over the lesser tuberosity. When this point is very tender (comparison should be made with the opposite shoulder) it is fairly diagnostic in association with the symptoms described.

Roentgenography is important. If nothing is shown, it does not deny, rather it supports, the diagnosis of bursitis. If the shadow of a lime deposit is seen, however small it may be, the diagnosis is established beyond doubt.[8] Finally, the roentgenogram may show some unsuspected lesion, namely, syphilis or tuberculosis of the head of the humerus, or a small fracture of its tuberosity (the latter, as I have said, clinically the same lesion as supraspinatus injury and, like it, probably also having a bursitis associated with it).

CLINICAL FORMS

Codman's[6] classification into three types, "acute or spasmodic, subacute or adherent and chronic or nonadherent," is unsatisfactory from the anatomic side, for in all cases, acute or chronic, the pathology is, I believe, the same — an adhesive bursitis. We cannot recognize, therefore, a nonadherent and an adherent type, nor it seems to me, can we make a satisfactory distinction under the titles "subacute" and "chronic."

In my experience the cases present themselves in the following forms which, however, are not to be sharply separated: acute, "hyperacute," chronic, chronic with exacerbations.

In acute cases, pain and stiffness develop rapidly and reach a maximum in about three days. The pain is quite severe and constant, and subsides little or not at all at night. The arm can be only slightly abducted without great pain. There is spasm of the shoulder muscles, increased by attempted abduction or internal rotation, active or passive.

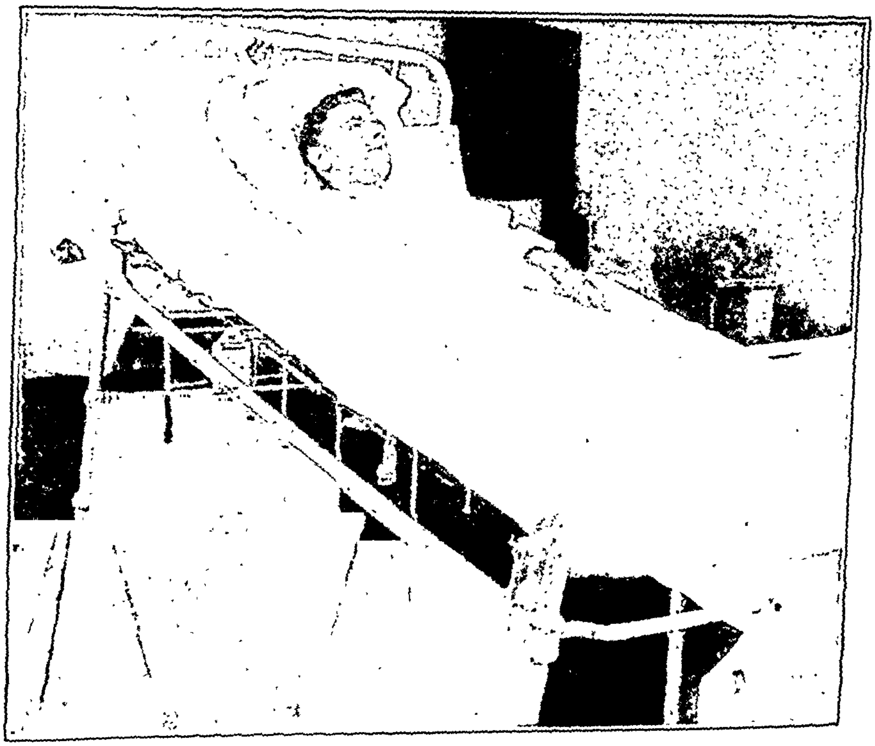

Fig. 8.—My easily regulable method of automatically restoring abduction in the treatment of shoulder disability.

The term "hyperacute" I use to indicate not so much the rapid development of the symptoms as their severity. The pain is very great. The patient hugs his arm to his chest, and the slightest attempt to raise it causes severe spasm. There is a rapid development of atrophy of the deltoideus and the spinati. Radiation of the pain into the fingers, with this atrophy, may deceive even a neurologist into the diagnosis of brachial neuritis. Indeed, the early appearance of atrophy of these three muscles suggests that there may be some associated localized neuritis; disuse for a short period seems not quite sufficient to explain it.

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[8] Occasionally the tendon lesion exists without an overlying bursitis, but the symptomatology and treatment are the same.

In both the acute and the "hyperacute" forms, tenderness at the point I have described is exquisite.

Acute subdeltoid bursitis may gradually subside completely. More often it passes into the chronic form.

Chronic subdeltoid bursitis begins in the acute form, or is of the same severity throughout. The pain is often annoying rather than unendurable. It may be quite intermittent, varying in severity. Often it is present only on certain motions (as in pulling on an overcoat sleeve, or attempting to comb the hair). Abduction may be limited to 45, 90 or 130 degrees; internal rotation may be much or little retarded. Passive movements are usually a little freer than active. External rotation is sometimes limited. In many cases the movements are perfect, but usually they are then more or less painful. Tenderness on pressure over the lesser tuberosity is usually present and often great. There may or may not be atrophy of the deltoideus and spinati.

This chronic form persists for months or years. Usually it subsides, with or without treatment, sometimes in spite of certain treatments. The lime deposit, if there is one, may gradually disappear completely.

The "chronic form with exacerbations" is of those cases, lasting for years, in which there is often a recession of symptoms, more or less complete, for long periods, but in which every few weeks or few months there is a severe exacerbation in which the symptoms approach those of the acute or even the "hyperacute" form.

TREATMENT

I am not inclined to place much confidence in electricity, baking, violet ray, internal medication or even massage. It is true, no doubt, that patients have recovered, by reason of such measures, or in spite of them. On the other hand, most of the patients referred to me have abandoned these treatments because their symptoms were unrelieved or even aggravated by them.

My first object, in the management of subdeltoid bursitis, is to overcome the abduction disability, the spasm (if there is any) and thereby, to a large extent, the pain. This I do by a simple automatic abduction method elsewhere described.[9] I put the patient to bed supported on several pillows and with his arm raised as far as he comfortably can abduct it. A towel or bandage sling is passed from the wrist or elbow to the head of the bed, and this end of the bed is raised on blocks or chairs (Fig. 8). It will often be noted that as soon as the patient is comfortably recumbent he can abduct his arm more than when standing. As he gradually slides down in bed his arm correspondingly goes up; and it is no rare experience in a patient who has not abducted his arm more than 45 degrees in many months to find it thus fully and painlessly abducted in twenty-four hours. Usually it takes a few days longer. If the patient cannot sleep with his arm in this sling, or cannot maintain that position continuously, he may intermit this gradual traction. Codein and acetyl-salicylic acid are helpful aids in overcoming the pain the first day or two. When passive abduction is thus fairly secured, active abduction is restored with it, and the pain soon disappears also in most cases. The abduction is maintained, and internal rotation is secured by after-treatment with Indian club exercises.

This plan of treatment is equally applicable to acute, "hyperacute," and chronic cases. It is of little or no value in chronic cases with no loss of motion. These cases, in which pain is the only symptom, are, in my experience, the most difficult to cure. Fortunately, the patients usually recover spontaneously.

I have come to the belief that most patients who have subdeltoid bursitis recover under this plan of treatment in bed with automatic abduction, or the trouble subsides spontaneously, though slowly. There are some, however, that do not thus recover and some that, though they may eventually do so, meanwhile suffer so much pain, loss of function and interference with occupation that operation is to be recommended as a means of prompt cure. I would therefore advise operation in the following cases: 1. In the chronic form with exacerbations. These patients have been through all sorts of treatment for years; their sufferings during the periods of exacerbation are severe; they show no tendency to spontaneous recovery. 2. In acute, "hyperacute" and chronic cases in which the automatic abduction in bed fails to restore function and to relieve pain and spasm.

The operation I employ I have previously described.[10] In consists in: splitting the deltoid; raising the outer wall of the bursa from the inner and incising it; dividing all adhesions in the bursa; incising and retracting the floor of the bursa; removing the deposit, if extratendinous, and suturing any tear in the supraspinatus tendon; or incising the tendon wherever indicated by the roentgenogram and excising the deposits with surrounding tendon fibers, and reuniting the tendon with chromicized catgut (if the defect is not too large); suturing the floor of the bursa with a fine running catgut stitch; anointing the interior of the bursa with a thin layer of petrolatum; suturing the outer wall of the bursa; suturing in layers, without drainage, the deltoid muscle, the deltoid fascia and the skin; abducting the arm in plaster of Paris for about a week.

The petrolatum may not be important. The reconstruction of the bursal walls is not essential, but it aims at an anatomic operation. The abducted position is also not essential, but I believe that it shortens the after-treatment, which consists in Indian club exercises and other devices to restore internal rotation and full abduction.

All the patients thus operated on have been promptly relieved of pain and early restored to full activity. In only one patient, a physician, was there any complication — a brachial phlebitis which retarded his recovery a few weeks.

In one case of chronic bursitis without any lime deposit, in which the pain and disability continued, with exacerbations, for years, division of the adhesions and abduction for one week were followed by permanent cure. This is the only case without lime deposit in which I have operated. It illustrates, first, that the roentgenogram of a deposit is not essential to a diagnosis of subdeltoid bursitis and, *second*, that division of the adhesions (and placing petrolatum in the bursa) will effect a cure when conservative measures fail, even in the absence of the lime mass.

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[9] Brickner, W. M.: A Simple Easily Regulable Method of Applying Abduction in the Treatment of Shoulder Disability, Med. Rec., New York, Jan. 2, 1915.

[10] Brickner, W. M.: Footnote 3, first reference.

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ABSTRACT OF DISCUSSION

Dr. Eli Moschcowitz, New York: [Dr. Moschowitz demonstrated lantern slides made from specimens of portions of supraspinatus tendons submitted by Dr. Brickner for pathologic examination.] The lesion is a tendonitis, characterized by necrosis or hyaline degeneration of the tendon with secondary calcification, and a reactive granulation tissue around these areas of necrosis or calcification. The morphologic changes parallel the duration of the disease; thus, in long standing cases abundant scar tissue is present, while in early cases the granulation tissue is richly cellular. I believe that the necrosis was due to actual death of tendon tissue and was not of hemorrhagic origin because blood pigment was entirely absent. The necrosis is, in all probability, due to cutting off of the meager blood supply of the tendon consequent on the trauma. Calcification inevitably follows in those portions of the tendon that have undergone necrosis or hyaline degeneration. This is the usual consequence in other tissues of the human frame. The remarkable feature is the early incidence of the calcification. We are accustomed to think of calcification as occurring only after the tissue has been dead for some time, but in the cases that Dr. Brickner reports calcification occurs as early as forty-eight hours after the onset of symptoms. The only possible explanation of this early calcification is found in the results of the experiments of Litten and Schujeninoff, who found lime twenty-four hours after traumatic necrosis of the kidney and muscle, respectively. Perhaps the peculiar predilection to early calcification may be due to certain biochemical products in the tendon itself (collagen?).

Dr. J. Bion Bogart, Brooklyn: I want to say a word from the standpoint of one who suffered for four and a half years and has not been cured. Four and a half years ago I had a surgical infection through the index finger which resulted in metastatic infection of the shoulder joint and which was opened and drained and afterward had extension for four weeks. I was able to work after that, though I still have limitation of motion in the joint, but not ankylosis. My chief symptom, in addition to limitation of motion, is pain, which is not present except on motion or pressure. One of the most serious difficulties that I labor under is inability to turn on my left side to sleep at night. I cannot lie on that shoulder because the pressure causes too much pain. When I raise my arm it causes pain, which runs down the arm.

In my own case, so far as I know, there was no injury. I think that the same infection that caused the metastasis to the shoulder joint produced the bursitis, which was not, however, recognized at the time. Following recovery from the early symptoms, I had treatment with baking and massage for two months, after which I gave it up, because I did not gain anything in motion and the treatments were followed by pain. This kind of treatment did not seem to do me any good, but harm, if anything. I have done nothing since for the last four years. I was roentgen rayed at the time of my infection, and since then, a year and a half ago. The gentleman who did it later, Dr. Wasch, is here. There was no calcareous deposit then, and, so far as I know, there is none now.

Now what is it that causes my pain? I have none when the arm is at rest, but only on pressure or motion. If adhesions cause it in the cases in which there are no deposits, I think they are sure to be reformed after operation; and I do not see how relief can come from the operation in such cases as mine. I do not see, either, how relief could come from forcible stretching of the arm upward. It cannot be done immediately, but only gradually; but, as the scapula moves with the arm, I do not see how benefit could come in that way.

Dr. Fred J. Fassett, Seattle: Have any of those present seen the very rapid disappearance of these lime deposits? I have seen one case, reported by Dr. Risley of Boston, and also one of my own, in which the disappearance of the calcification was so rapid as to cause a question as to the authenticity of the plates.

Dr. Milton G. Wasch, Brooklyn: I have been fortunate enough to have made roentgenograms in a great many of these cases. Within the last six months I have seen twenty-five. It has always been my custom to make roentgenograms of the opposite shoulder for comparative study, and I have been surprised, in a good many cases, to find lime salts in the opposite shoulder, in which the patient had not complained of any symptoms either at that time or previously. I, therefore, feel that the statement that deposits of lime salts form in one or two days is doubtful. I think when the patient complains of symptoms due to subacromial bursitis the probability is in most cases that the calcium has already been deposited and that the condition and suffering are from an acute exacerbation of a chronic calcifying bursitis.

Dr. Willis C. Campbell, Memphis, Tenn.: I should like to emphasize a point that Dr. Brickner made in his paper, that mild trauma is the frequent cause of this condition; and also that this injury may be overshadowed when other parts are seriously damaged. I had such a case in a young man. The injury was received in an automobile accident and he did not recognize the trouble in his shoulder for six weeks. By that time there was beginning atrophy. I did not see him for six months after the accident; then there was extreme atrophy and considerable trophic disturbance in the arm with abduction totally limited. Relief was soon given by simple abduction in a plaster cast, followed by massage, etc.

Dr. Heinrich Wolf, New York: I have had occasion to treat a few hundred cases of subacromial bursitis and should like to know what stand Dr. Brickner takes now regarding the infectious origin of some of these cases. We know that a great many are traumatic.

With particular reference to the remarks of the last speaker, I would say that I have noticed a great many cases following Colles' fracture of the wrist. If a patient falls on his hand and gets a fracture of his wrist, the pain in his wrist is so severe that he neglects a probable slight injury in the shoulder joint. I have seen about twenty cases of this in the dispensary of the Mount Sinai Hospital, in which subacromial bursitis developed five or six weeks after the injury to the wrist.

Then I have seen patients get a similar condition after infectious conditions in the hands. I cannot explain in what way an infection in the hand can be followed by subacromial bursitis, but I have seen it too often to consider it an accident. I hope that Dr. Brickner will be able to answer this question, particularly about the infectious condition. I have seen lately quite a number of cases of acute bursitis in which I was positively able to trace it to infection in the teeth. I know that Dr. Brickner does not believe that this is possible; but I mean, of course, only a certain number of cases. I want to say that I have seen other etiologic factors, but that in these particular cases removal of the teeth relieved the pain.

Dr. John Dunlop, Washington, D. C.: In some cases with a lime deposit in which operation was performed I found absolutely no adhesion. I should like to ask Dr. Brickner whether he considers that all cases of lime deposit have subacromial bursitis. I think in most cases they are quite separate conditions.

I believe there is nothing in Dr. Brickner's exposition, other than what Dr. Codman brought out in his paper in 1908. I have seen four cases of such deposits, in one of which operation was performed. In the first three cases that I saw operation was refused. I put the arm up in the abducted position and the patients got as well as any other cases of subacromial bursitis that I have seen. The fourth case was in a man who had so much pain that half a grain of morphin every four hours would not quiet him. I tried to put his arm up in the abducted position under nitrous oxid anesthesia. This increased the pain so markedly, however, that I operated. Dr. Brickner showed that he found adhesions. I found no adhesions in this case. I cut down to the bursa and demonstrated it to be as large, as Dr. Codman explained, as the palm of the hand. I saw the white mass shining through the base of the bursa and cut down on this and was able to scoop it out with a spoon. It was of the consistence of a soft toothpaste and quite white. I sent it to the laboratory of the Army Medical School and hoped to get a report on it from there; but it was lost. I did, however, get a negative bacteriologic report. I passed a probe well up within the sheath of the supraspinatus muscle and was sure that I was within it. The lower and upper surfaces of the bursa were closed and the man got a perfect functional result.

The day after I heard Dr. Brickner read his paper I had a case in an officer in the Marine Corps who refused operation. I put his arm up in abduction and he got well. Later, he had symptoms in the other shoulder, of which I had not made roentgenograms when I operated on the first shoulder. I treated that, and he got so well that he now plays tennis and golf every day. He still has the deposit in the shoulder, eighteen months after the diagnosis was made.

I do not agree with Dr. Brickner that these deposits occur within a few hours. We have no evidence that they do, for we do not take roentgenograms of our patients before. I think the symptoms come on from some trauma due to the deposit which may have been there for weeks, months or years before. It seems to me, from my four cases, in three of which there was no operation, that these patients will get well without operation.

Dr. Walter M. Brickner, New York: Dr. Dunlop reports that he found a lime deposit in the tendon in a case in which there were no adhesions in the bursa. That does occur. I referred to it in an earlier paper as "calcareous tendinitis without bursitis." I do not wish to claim anything that belongs to Codman, who was the first to suggest, in three cases, that the deposit is under the bursa. He speaks of it, however, as wenlike and cystlike, which it is not; and the conception of it as being often wholly within the tendon was not brought forth by Codman.

Concerning the rapid formation of the deposit, you are right in questioning my statement. The deposit may have been there before the symptoms called for a roentgenogram, but I have, not only once, but several times, found patients who, two days after a fall on the shoulder, or a lurch of the body while hanging to a car strap, showed this deposit in the picture, patients who never previously had any symptoms, but who had the characteristic symptoms after the injury. In one such case, "hyperacute," I operated a few days after the injury. The deposit had been shown by the Roentgen ray three days after the injury. I found a fresh tear in the ecchymosed supraspinatus tendon, and the lime deposit in the tear and in the surrounding bruised tendon tissue. Whether I am right in the assumption of very rapid lime formation, I am willing to leave open. I have not seen rapid disappearance of the deposit. I have seen it occur within two to six months, but not earlier.

I believe that I have fully answered Dr. Wolf's question. Occasionally one encounters metastatic suppuration in the bursa in connection with a septic process; but I believe that the cases of subdeltoid bursitis of which we have been speaking are not infectious in origin. Sometimes a man reports an isolated case in which the patient had tonsillitis previously, and then be jumps to the conclusion that the tonsillitis was the cause of the disease. That is unscientific.

I hope that I have made it clear that these patients often get well without operation.

School Medical Inspection and Local Government.—Were it not for the fact that the Cumberland schools and the county schools are one unit, we might be able to see our way clear to establish medical inspection of schoolchildren, but this cannot be under the present system of one school unit for the entire county. Ample laws now exist that would enable the county school commissioners to establish this inspection, but somehow or other, as with all other advanced movements, some public bodies are slow to comprehend their value. We urge all parents to advocate medical inspection for the sake of their children.—*Health Bulletin*, Cumberland, Md.

THE USE OF BAKERS' YEAST IN DISEASES OF THE SKIN AND OF THE GASTRO-INTESTINAL TRACT *

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That yeast possesses curative properties was appreciated in the olden times. Hippocrates recommended its use in leukorrhea, and the monks used it for the treatment of plague. Not until the middle of the nineteenth century, however, did the medical profession look favorably on its use. About that time, it was used successfully in furunculosis, anthrax and diabetes. Later it was shown to be effective in diseases of the skin, suppurative processes, diseases of the respiratory passages, gastro-intestinal diseases, vaginitis, general infectious diseases, etc. In fact, for an interval of many years yeast was used as a curative agent in a long list of widely differing disorders. Then came a reaction, and yeast was used comparatively little by the medical profession during the latter part of the nineteenth century.

TABLE 1.—CLASSIFICATION OF NINETY-ONE DIFFERENT CASES IN WHICH THE YEAST TREATMENT WAS USED

Type of Case	Number
Normal	15
Furunculosis	17
Acne vulgaris	17
Acne rosacea	8
Constipation	10
Gastro-intestinal catarrh	3
Intestinal intoxication	1
Eczemas	5
Arthritis deformans	1
Psoriasis	4
Erythema and urticaria	1
Bronchitis	2
Urethritis	2
Pruritus	1
Folliculitis	1
Conjunctivitis	1
Duodenal ulcer	1
Swollen glands	1
Total	91

In 1899 the researches of Brocq[1] emphasized anew the therapeutic importance of yeast, and from 1900 to 1907 many important contributions were made to the subject of yeast therapy. For the last ten years, however, comparatively little attention has been paid to the use of yeast in medicine.

Owing to the fact that the great majority of the yeast researches have been carried out with brewers' yeast or various dried yeast preparations, and since several investigators have asserted that bakers' yeast was not a satisfactory therapeutic agent, we have thought it of importance to make a comprehensive study of the curative value of ordinary bakers' yeast, since that is the most available kind. In all of our tests we used Fleischmann's Compressed Yeast, as that is the best known and most widely used of bakers' yeasts. The fresh yeast was used in all cases, a new supply being secured from two to three times a week and kept in the refrigerator until used.

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* From the Laboratory of Physiological Chemistry of Jefferson Medical College, the Philadelphia General Hospital, and the Roosevelt Hospital, New York.

[1] Brocq, A. J. L.: Presse méd., Jan. 28, 1899, p. 45.

TABLE 2.—SUMMARY OF RESULTS IN THE SERIES OF CASES

Condition	Number of Cases	Improved or Cured
Furunculosis	17	16
Acne vulgaris	17	17
Acne rosacea	8	8
Constipation	10	9
Gastro-intestinal catarrh	3	3
Intestinal intoxication	1	1
Eczemas	5	0
Arthritis deformans	1	1
Psoriasis	4	1
Erythema and urticaria	1	1
Bronchitis	2	2
Urethritis	2	2
Pruritus	1	1
Folliculitis	1	1
Conjunctivitis	1	1
Duodenal ulcer	1	1
Swollen glands	1	1
Totals	76	66

The literature of the yeast question is so voluminous that we make no attempt in this connection to give a comprehensive survey of previous work. Our main purpose is to present a brief summary of the cases we have studied. Those who are interested in the literature of the subject we would refer to Lardier,[2] Krause[3] and Hedrich,[4] in whose articles a very full bibliography will be found.

We have made a study of ninety-one cases, which have been classified as explained in Table 1. We made tests on normal persons to learn the action of yeast in the stomach when given suspended in water, beef tea or orange juice, with meals or between meals. We also studied the comparative effect of living and dead yeast. The yeast was killed by treating it with boiling water for a few minutes. All stomach examinations were made by means of the fractional method.[5]

From these tests it is apparent that yeast may be administered satisfactorily either with meals or on the empty stomach. It is also apparent that killed yeast (that is yeast placed in boiling water for a few minutes) acts much the same in the stomach as living yeast. If the patient is troubled with gas formation it is preferable to use killed yeast, or to administer living yeast between meals.

These tests also demonstrated conclusively that yeast is not readily destroyed in the human stomach, but that on the contrary, especially when taken between meals, a large part of the yeast passes into the intestine in the living condition. Hence, it is possible that in certain disorders, especially those involving constipation, the living yeast has a more pronounced action than dead yeast.

From Table 2 it will be seen that yeast treatment gave the best results in furunculosis, acne vulgaris, acne rosacea and constipation. The treatment was also useful in acute bronchitis, urethritis, conjunctivitis, swollen glands, folliculitis, gastro-intestinal catarrh, intestinal intoxication, arthritis deformans and duodenal ulcer. The laxative effect of the yeast was observed in cases other than those of constipation. In fact, in some instances the laxative effect was so pronounced that it was necessary to reduce the dosage. Both the fresh yeast and that killed by boiling water

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2. Lardier, Jean: Thèse de Paris, 1901-1902.
3. Krause, P.: Therap. d. Gegenw., 1904, **45**, 101.
4. Hedrich, K.: Deutsch. Aerzt. Ztg., 1904, **49**, 75.
5. Rehfuss, M. E.: Gastro-Intestinal Studies: The Question of Residuum Found in the Empty Stomach, THE JOURNAL A. M. A., July 4, 1914, p. 11. Hawk, P. B.: Practical Physiological Chemistry, Ed. 5, Philadelphia, P. Blakiston's Son & Co., 1916.

TABLE 3.—REPORTS OF CASES OF FURUNCULOSIS IN WHICH THE YEAST TREATMENT WAS USED

Case, Sex and Age	Complaint	Treatment	Results
16— F —22	Series of deep-seated boils for over two months; five lanced in one week.	Five injections of vaccine. One-half cake yeast t. i. d. after meals.	No effect. Almost immediate improvement; cure in two weeks.
17— F — *	Several large boils, which did not yield to vaccine. Boil started on leg after yeast was stopped.	Three cakes daily for two weeks. Yeast resumed.	Boils disappeared. Boil soon cured.
18— M —38	Succession of boils; many on back of neck, several on body; one carbuncle.	One-half cake t. i. d. after meals; arsenic internally.	All cleared up; patient has increased in weight.
19— M —42	Disease present several years; six small boils in six weeks.	Three cakes daily before meals for seven days.	Boils cleared quickly.
20— F — *	Large boil draining on face; one just coming to a head.	Three cakes daily before meals for two weeks.	Cured; no more appeared
21— F —26	Boils a week apart for about two months; when treatment started, one on neck and one on wrist.	Three cakes daily before meals for two weeks.	Both healed; no more in four weeks.
22— M —33	Carbuncle treated surgically; later boils developed.	One-half cake t. i. d. after meals.	Cured; eructations and looseness of bowels after yeast.
23— M — *	Boils on buttocks for period of nine months.	Three cakes daily before meals for two weeks.	All boils healed.
24— M — *	Nine large boils during a period of about two years.	Three cakes daily before meals for six weeks.	Felt much better; no recurrence.
25— M —25	Five boils in two months.	Three cakes daily before meals.	Boils soon subsided; no recurrence.
26— M —42	Stye in left eye; boric acid treatment four days with no improvement; patient subject to this trouble.	One-half cake dead yeast t. i. d. before meals next four days.	Cure more rapid than ever before noted.
27— M —20	Boils periodically for several years; large one on right buttock lanced after ten days and yeast treatment started. Two weeks after first boil healed a much smaller one appeared on abdomen.	Three cakes daily before meals for three weeks. Yeast continued.	Healed quickly. Cured quickly; no recurrence after four months.
28— M —25	Troubled with boils for several months; large one on back of neck.	Three cakes daily before meals for three weeks.	Boil disappeared.
29— M —52	Boils periodically for years; two large ones on neck.	Two cakes dead yeast daily.	Boils disappeared.
30— M —24	Troubled with boils at short intervals for several years; large boil in left axilla lanced after one week and yeast treatment started.	Three cakes daily before meals for one month.	Boils cleared rapidly; second small one failed to head; no recurrence in four months.
31— M —36	Boils at intervals for some months; several dozen large ones on different parts of body, usually not more than two or three at a time.	One cake t. i. d. after meals for three weeks.	Boils continued to appear.
32— M —50	For three months had not been free of boils, most of which were of hazel-nut size.	One cake t. i. d. after meals for four weeks.	Boils stopped appearing after one week; no recurrence in six weeks.

* Adult.

TABLE 4.—CASES OF ACNE VULGARIS TREATED WITH YEAST

Case, Sex and Age	Complaint	Treatment	Results
33— M —21	Disease had been present for nearly two years; deep-seated papules and pustules covering practically entire face.	Zinc sulphate and potassium sulphid with laxatives. Above treatment and one cake yeast t. i. d. after meals.	Only very moderate improvement. At end of two weeks lesions almost entirely dried up; at end of four weeks no active lesions; no new spots in two weeks.
34— F —22	Moderate case, chiefly papular type, of two years' duration.	Boric acid locally for some weeks; then one cake t. i. d. for three weeks.	More improvement in ten days with yeast than in one month local applications; no active lesions in one month.
35— M —20	Moderate eruption, mostly papular, during one year.	One cake t. i. d. for three weeks.	Active lesions disappeared.
36— M —23	For four years, a marked case with numerous pustules and papules.	One cake t. i. d. for four weeks; boric acid locally.	Marked improvement.
37— M —25	For five years, numerous deep papules and pustules.	Zinc sulphate and potassium sulphid locally; one cake t. i. d for four weeks.	Marked improvement.
38— F — *	Moderate eruption on face for one year.	Three cakes daily before meals for three weeks.	Marked improvement; face clear when last seen some weeks later.
39— M —42	Slight eruption on back and abdomen for about one month.	One-half cake dead yeast t. i. d. before meals for seven days.	Eruption disappeared.
40— M —21	Moderate eruption for two months.	Three cakes daily before meals for two weeks.	Eruption cleared.
41— M —19	Numerous pustules and papules on face and body for five years.	Three cakes daily before meals for three months.	Improvement rapid; marked improvement after three months.
42— M —20	Acute eruption.	Three cakes daily for two weeks.	Eruption disappeared; no recurrence.
43— M —21	Pronounced case of five years' duration.	Two cakes daily for four weeks.	Eruption cleared; began to return one month later.
44— M —23	Marked eruption on face and body for three years.	Two cakes daily for four weeks.	Eruption disappeared, but returned one week after yeast was discontinued.
45— M —21	Very moderate eruption on cheeks and chin for one month.	Three cakes daily for four weeks.	Eruption disappeared.
46— M —22	Moderate eruption on cheeks for two months.	Three cakes dead yeast t. i. d. before meals for two weeks.	Eruption entirely disappeared.
47— M —24	Moderate eruption, chiefly papular, during several years.	Three cakes daily before meals for two months.	Eruption disappeared in two weeks; no recurrence.
48— M —21	Moderate eruption on face and body during three years.	Two cakes daily before meals for five weeks.	Cleared almost completely in four weeks.
49— M —20	Case of long standing with some indurated follicles; local sulphur treatment had yielded no results.	One-half cake t. i. d. after meals.	Unquestioned improvement; no other medication or change of diet.

* Adult.

TABLE 5.—RESULTS OF YEAST TREATMENT IN ACNE ROSACEA

Case, Sex and Age	Complaint	Treatment	Results
50— M —50	Typically marked case of fifteen years' duration; numerous large red papules, congested arterioles, and bright red nose.	One cake yeast t. i. d. after meals for four weeks.	Improvement in few days; nose and cheeks normal in color in four weeks except for arterioles; papules gone.
51— M —45	Marked case of ten years' duration; numerous bright red, deep-seated papules; scarlet nose, cheeks and forehead.	Boric acid locally; one cake yeast t. i. d. after meals for four weeks.	Lesions cleared; redness disappeared in three weeks; unusually quick result.
52— F —40	Marked case of five years' duration; chiefly papules with considerable congestion of nose and face.	Boric acid locally; one cake t. i. d. after meals for three weeks.	Improved in a few days; practically cleared in ten days.
53— M —35	Moderate case of three years' duration.	One cake t. i. d. after meals for two weeks.	Skin normal and lesions gone in two weeks.
54— F —30	Moderate case of two years' duration; typical papules, congestion, and few pustules.	One cake t. i. d. after meals for three weeks.	Face cleared in less than two weeks.
55— M —35	Moderate case of three years' duration; typical papules, a few pustules, bright red nose, cheeks and forehead.	One cake t. i. d. after meals for three weeks.	Lesions cleared in two weeks' time.
56— F —38	Marked case of eight years' duration; numerous papules and pustules, scarlet nose, red cheeks and forehead.	Boric acid locally; one cake t. i. d. after meals for four weeks.	Markedly improved.
57— M —52	Bright red nose for several years.	Two cakes daily for four weeks; living yeast at first, dead yeast later.	Marked improvement.

TABLE 6.—THE SUCCESS OF YEAST TREATMENT IN CONTROLLING CONSTIPATION

Case, Sex and Age	Complaint	Treatment	Results
58— F —46	Slight constipation for a few weeks.	One-half cake dead yeast t. i. d. before meals for one week.	Movements so frequent yeast was discontinued.
59— F —26	Mild case of chronic constipation of several years' duration.	One-half cake dead yeast t. i. d. for ten days.	Much improvement.
60— M —48	Chronic constipation for a year or more; receiving three compound cathartic pills daily to regulate bowels.	Three cakes yeast daily before meals.	Movements became regular without other medication.
61— M —52	Mild constipation for several years.	Two cakes daily before breakfast and dinner for four weeks.	Living yeast regulated well, killed yeast did not.
62— M —21	Slight constipation for a few weeks.	Two cakes daily before meals for a month.	Regular movements from the start of yeast.
63— M —24	Constipation for several months.	Three cakes daily before meals.	Regular movements soon occurred.
64— M —21	Mild constipation.	Two cakes daily for five weeks.	Regular movements soon and remained so after yeast was discontinued.
65— F —69	Constipation for several years.	Three cakes daily for several days.	Regular movements in two or three days.
66— M —20	Constipation for several years with periodic headache.	Three cakes daily before meals.	Regular in four or five days; general physical condition improved.
67— F — *	Subacute appendicitis, high intestinal stasis, and constipation.	Yeast and dietary measures.	No relief from constipation; appendiceal condition worse.

* Adult.

showed laxative power. In one case the patient became constipated under yeast treatment.

So far as gastro-intestinal conditions are concerned, it is apparent that yeast has its greatest usefulness in conditions accompanied by cutaneous manifestations. It seems to us that yeast is essentially indicated in chronic nonobstructive bowel conditions and contraindicated in the acute conditions.

Whether the success of yeast in acne vulgaris and acne rosacea is due alone to its laxative action or to some fixed effect on the intestinal tract, we are unable to say. The preparation was laxative in all these cases, in two so much so that a half dose was given for a few days. There was considerable gas formation, but no complaints were made on this score.

In furunculosis, yeast is a remarkably efficacious remedy. Its curative action in these cases is no doubt aided by the leukocytosis which is developed.

TABLE 7.—CASES OF GASTRO-INTESTINAL CATARRH TREATED WITH YEAST

Case, Sex and Age	Complaint	Treatment	Results
68— F — *.....	Chronic gastro-intestinal catarrh, stubborn, and of several years' duration.	Lavage, applications of silver, dietary measures, *one-half cake yeast t. i. d.*	Bowel condition improved; slight increase in gastric hydrochloric acid.
69— M —35.....	Ethmoidal sinus disease, gastric and intestinal catarrh, intestinal stasis, and constipation.	Low protein diet, magnesium perhydrol, nose and throat treatment; *one-half cake at first, then one-quarter cake t. i. d.*	Bowel condition improved; catarrhal tendency lessened; movements more complete.
70— M — *.....	Chronic gastric catarrh, low grade catarrh of the colon, chronic constipation, and tinnitus aurium.	Dietary and local treatment gave improvement; *one-half cake t. i. d.* added.	Definite improvement in ringing of ears and bowel condition.

* Adult.

TABLE 8.—YEAST TREATMENT IN FIVE CASES OF ECZEMA

Case, Sex and Age	Complaint	Treatment	Results
71— M —35.....	All five were extensive, long standing cases, papular, papulo-vesicular, vesicular, or rubrum in type.	Petrolatum locally with *three cakes of yeast daily* was the treatment in all of these cases.	No improvement although yeast was given in some cases for four months.
72— F —30.....			
73— M —45.....			
74— F —40.....			
75— M —48.....			

TABLE 9.—RESULTS OF YEAST THERAPY IN THE TREATMENT OF PSORIASIS

Case, Sex and Age	Complaint	Treatment	Results
76— M —12.....	Typical case of two years' duration; general distribution with lesions mostly the size of a dime.	One-half cake t. i. d. and petrolatum locally; previous petrolatum and arsenic treatment had little effect.	Very marked improvement.
77— M —50.....	Very marked case of eight years' duration; large plaques, some palm-sized, were present.	One cake t. i. d., and petrolatum locally.	No improvement.
78— M —40.....	Very marked case of six years' duration; large plaques with very thick patches.	One cake t. i. d. for three weeks; petrolatum locally.	No improvement.
79— F —30.....	Moderate case of five years' duration.	Three cakes daily for three weeks; petrolatum locally.	No improvement.

TABLE 10.—REPORTS OF MISCELLANEOUS CASES IN WHICH THE YEAST TREATMENT WAS USED

Case, Sex and Age	Complaint	Treatment	Results
80— F —13.....	Acute bronchitis.	One-half cake dead yeast t. i. d. for seven days.	Marked improvement.
81— F —27.....	Acute bronchitis.	One-half cake dead yeast t. i. d. for one week.	Marked improvement.
82— M —28.....	Mild case of urethritis of three months' duration.	Three cakes daily for three weeks.	Marked improvement.
83— M —26.....	Mild case of urethritis of one month duration.	Three cakes daily for three weeks.	Condition cleared up.
84— F —30.....	Long standing case of arthritis deformans, with marked intestinal stasis and obstinate constipation. Frequent acute exacerbations with redness and swelling of joints.	Ductless gland therapy, intestinal irrigations, B. coli vaccine, etc., for years. One-half cake yeast t. i. d. after meals.	Not much effect. Acute exacerbations disappeared.
85— M —19.....	Enlarged liver, high intestinal stasis, hyperacidity, hypersecretion, gastric motor delay, and marked intestinal putrefaction.	Three cakes daily after meals.	No relief.
86— F —46.....	Pronounced conjunctivitis of the right eye.	One-half cake dead yeast t. i. d. for seven days.	Eye became normal.
87— M —22.....	Folliculitis; hundreds of hair follicles from ankles to knees much inflamed; two months' duration.	Three cakes daily and petrolatum locally for three weeks.	Cured in two weeks; no recurrence after one month.
88— M —50.....	Pruritus with generalized itching of two years' duration; patient neurotic.	One cake t. i. d. for three weeks.	No improvement.
89— M — 9.....	Swollen superficial cervical lymph glands.	One-quarter cake dead yeast t. i. d. in orange juice for eight days.	Glands became normal.
90— F — *.....	Erythema and transient urticaria.	One-quarter cake t. i. d. after meals.	Unquestionable improvement and pronounced laxative action.
91— M — *.....	Medical diagnosis of duodenal ulcer with gastric hypermotility.	Frequent feedings; one-half cake t. i. d. after the three main meals; bromids, atropin and alkalies.	Symptoms disappeared and bowels made regular.

* Adult.

SUMMARY

1. Bakers' yeast was found to be a useful remedy in the treatment of furunculosis, acne vulgaries, acne rosacea, constipation and in certain other cutaneous and gastro-intestinal conditions

2. The conditions which respond most favorably to the yeast treatment were (*a*) furunculosis, (*b*) the acnes (vulgaris and rosacea), and (*c*) constipation. Of seventeen cases of furunculosis, all but one of the patients were improved or cured. Of seventeen cases of acne vulgaris, all patients were improved or cured. Of eight cases of acne rosacea, all patients were improved or cured. Of ten cases of constipation, nine were improved or cured. In other words, fifty out of fifty-two cases of furunculosis, the acnes, and constipation were improved or cured by yeast treatment.

3. We consider that yeast is fully as successful as any other remedy in furunculosis, acne vulgaris and acne rosacea.

4. In many of the cases which came under our observation, the yeast treatment caused an improvement in the general physical condition of the patient quite unassociated with the improvement of the symptoms associated with the particular disease in question.

SPECIFIC SERUM THERAPY OF EPIDEMIC POLIOMYELITIS

A REPORT ON ONE HUNDRED AND FIFTY-NINE CASES TREATED WITH ANTIPOLIOMYELITIC HORSE SERUM *

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This report describes in detail the mode of production, technic of administration and the results obtained in a series of 159 cases of epidemic poliomyelitis treated with antipoliomyelitic serum prepared in the horse by injections of the poliomyelitic coccus. These patients were treated in the Cook County Hospital during the present epidemic which has prevailed throughout the summer and autumn months of 1917 in the city of Chicago.

The epidemic first appeared during the latter part of July, 1917. It may be said to have reached its height during the first twenty days of September, when more than 200 cases were reported to the health department and over 100 patients were admitted to the isolation ward of the Cook County Hospital. With the advent of cool weather the number of daily admissions appears to be decreasing somewhat, and accordingly it now seems pertinent to report the results attained up to October 1 of the present year.

We have been fortunate, indeed, in having the opportunity to study two different outbreaks of infantile paralysis. The first epidemic visited Chicago during the summer of 1916, when there were 285 cases reported with a mortality of 15 per cent. The present epidemic of 1917 has already exceeded the first both as regards the total number of cases reported and more especially the extreme virulence of the causative micro-organism and the unusually high death rate. From statistics kindly furnished by the Chicago Health Department, 301 cases of poliomyelitis have been reported during the period of July 20 to Oct. 1, 1917, with a mortality of 32 per cent. The majority of deaths have occurred in those cases of an ascending or Landry's type of paralysis with progressive involvement of the diaphragm, intercostal and accessory muscles of respiration. It should be mentioned that in a considerable number of patients the disease has terminated fatally within from twenty-four to forty-eight hours after the onset of the symptoms, and not a few patients have died in the ambulances en route to the hospital.

The detection of neutralizing substances in the blood serum of both monkeys and human beings[1] following an attack of poliomyelitis, and the observations of Flexner and Lewis[2] of the protection of inoculated monkeys by means of injections of serum of recovered monkeys and human beings apparently has furnished the basis for serum therapy in man. Netter[3] and more recently several others have reported favorably on the treatment of poliomyelitis in man by injections of immune serum from convalescent patients. Unfortunately, however, it would seem that there are several disadvantages attendant on this method. Chief among these is the difficulty in securing serum in sufficient quantity properly to treat any considerable number of patients, and what is of still greater importance, the probable low antibody content of human serum as compared with an immune serum produced in the horse by injections of the causative micro-organism. The independent observations of Mathers,[4] Rosenow[5] and Nuzum and Herzog[6] on the presence of a peculiar gram-positive coccus in the central nervous system of poliomyelitic patients was soon followed by the isolation of the same coccus from the spinal fluid[7] of patients during the early stages of poliomyelitis. An intensive bacteriologic study of the spinal fluid of poliomyelitic patients during the present epidemic has served to confirm with striking regularity the presence of the same micrococcus. Thus in 128 cases the coccus has been isolated in pure culture in 109, or 85 per cent.; in ten, or 8 per cent., *B. subtilis* was present as a contamination, and nine cases, or 7 per cent., remained sterile. In many cases repeated punctures on successive days have yielded pure cultures of the coccus. Cultures are obtained with ease by inoculating a 1 per cent. glucose broth medium with from 1 to 2 c.c. of freshly drawn spinal fluid, and incubating under aerobic conditions for from twenty-four to forty-eight hours. Initial cultures on solid mediums are difficult to obtain. The majority of these different strains have been identified in subcultures on human blood agar-plates as fine, pin point, slightly green colonies often surrounded by a hazy zone of hemolysis. Moreover, we have found it possible to identify the coccus by the use of immune horse serum, employing the dilution method for estimating the point of opsonic extinction. This reaction is specific for the poliomyelitic coccus. Finally, we have recently shown, as has Rosenow,[8] independently, that repeated intravenous injections of the coccus in the horse produce an immune serum rich in agglutinins, complement fixation bodies and especially opsonin, and such a serum has been shown to possess protective and curative properties against fatal doses of virulent virus in experimental poliomyelitis in monkeys.

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* From the Laboratory of Pathology of the Cook County Hospital.

[1] Levaditi and Landsteiner: Compt. rend. Soc. de biol., 1910, **68**, 311. Flexner, Simon, and Lewis, P. A.: Experimental Poliomyelitis in Monkeys, The Journal A. M. A., May 28, 1910, p. 1780.

[2] Flexner and Lewis (Footnote 1).

[3] Netter, A.: Bull. de l'Acad. de méd., 1915, **74**, Series 3, p. 403.

[4] Mathers, George: The Etiology of Acute Epidemic Poliomyelitis, Jour. Infect. Dis., 1917, **20**, 113-124.

[5] Rosenow, E. C.; Towne, E. B., and Wheeler, G. W.: The Etiology of Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, pp. 1202-1205.

[6] Nuzum, J. W., and Herzog, Maximilian: Experimental Studies in the Etiology of Acute Epidemic Poliomyelitis, The Journal A. M. A., Oct. 21, 1916, pp. 1205-1208.

[7] Nuzum, J. W.: Bacteriologic Findings in the Cerebrospinal Fluid in Poliomyelitis, The Journal A. M. A., Nov. 11, 1916, pp. 1437-1439.

[8] Rosenow, E. C.: The Production of an Antipoliomyelitic Serum in Horses, The Journal A. M. A., July 28, 1917, pp. 261-266.

On the basis of these results it becomes a matter of the greatest moment to determine the therapeutic efficiency of such an immune serum in acute poliomyelitis in man.

IMMUNIZATION OF HORSE

A large horse, 6 years old, weighing 1,400 pounds, was selected and immunized, at first, according to the method described by Amoss and Wollstein,[9] which we previously empolyed to produce an antipoliomyelitic serum in sheep. The horse received intravenous injections of living organisms in increasing doses on three successive days, followed by periods of rest of from seven to ten days. For the first injection the twenty-four hour growth on a glucose agar slant was suspended in 2 c.c. of sterile physiologic sodium chlorid solution, and 0.3 c.c. of this suspension in 10 c.c. of saline solution was injected intravenously. Twenty-four hours later, 0.5 c.c. of the foregoing suspension of bacteria in 10 c.c. of physiologic sodium chlorid solution were injected intravenously, and a similar dose was given on the third day. This was followed by a period of rest, when a second series of injections was instituted. Small desensitizing doses have been regularly employed during the first injection of each series, and after the lapse of an hour the full dose is given. The organisms injected have all been originally cultivated in 1 per cent. glucose broth, and later subcultures were made on glucose agar slants and incubated at 35 C. for from eighteen to twenty-four hours. All of the strains employed for immunization have been subcultivated through several generations, always under aerobic conditions, and each strain injected has regularly been plated on blood agar prior to injection into the horse.

The first serial injections were begun, Jan. 30, 1917, and consisted of the poliomyelitic coccus isolated from the brain and cords of two recent human patients. The following six serial injections contained strains isolated from the spinal cord and the central nervous system of six fatal cases of human poliomyelitis, all of which were confirmed by necropsy and by microscopic sections of the spinal cord. The next seven serial injections consisted chiefly of the coccus isolated from the central nervous system of five different monkeys recently paralyzed with virus. Injections of bacteria were given usually intravenously but also by intramuscular injections and subcutaneously into the neck, shoulder and buttocks of the horse. The maximum dose has consisted of the twenty-four hour surface growth of three glucose agar slants in 8 ounce nursing bottles. Regular serial injections of both human and monkey coccus were continued up to July 1, 1917. A test bleeding made, June 6, revealed a potent immune serum. At this time 5,000 units of tetanus antitoxin were injected subcutaneously into the left buttock of the horse. From July 1 to September 15 a mixed culture of ten different strains of the coccus recently isolated from the spinal fluid of patients has been injected intravenously according to the schedule of serial injections followed above. The horse has been bled as follows: June 6, 500 c.c.; July 11, 2,000 c.c.; July 28, 2,000 c.c.; August 8, 3,500 c.c.; August 23, 2,500 c.c., and September 14, 3,600 c.c.

PREPARATION OF SERUM

After serial injections with different strains of the coccus over a period of four months according to the method outlined above, the horse was bled, June 6, and the antibody content of the serum determined. With the employment of homologous strains of the coccus, agglutination was found to be complete at 1:5,000 dilution, while the point of opsonic extinction as estimated by the dilution method of Klein was 1:6,144. From ten to fourteen days after the last injection the horse was bled from the jugular vein and the blood collected in sterile flasks under aseptic conditions. The blood was allowed to clot, at first at room temperature, and later the flasks were placed in the ice box for from twenty-four to forty-eight hours. The serum was decanted and centrifuged in sterile rubber capped containers. After repeated cultural tests for sterility the clear hemoglobin-free serum is bottled in sterile flasks of 2 ounces capacity plugged with rubber stoppers and sealed with paraffin. The serum for intraspinal administration is preserved in glass containers similar to those utilized in the preservation of antimeningococcic serum.

The serum employed by us has been used unactivated and unpreserved. The addition of 0.2 per cent. tricresol as a preservative has in our experience given rise to rather severe reactions in two patients and been found to aggravate the local irritant effect. It is highly essential that only serum free from hemoglobin be employed, as its presence definitely increases the irritative effect. Regarding the duration of potency of the serum, it has been found that the antibody content as determined by opsonic extinction and agglutination tests of a specimen preserved in the ice box has thus far remained unaltered over a period of three months.

METHOD OF ADMINISTRATION

All of the patients have been treated with serum both by intraspinal injections and at the same time by intravenous administrations. A considerable number have also received intramuscular injections. Intraspinal injections of from 5 to 15 c.c. were given slowly by the gravity method after the previous withdrawal of an equal or greater amount of spinal fluid. It is well known that in poliomyelitis the lumen of the blood vessels is constricted by the encircling ring of mononeuclear lymphocytes—the so-called perivascular infiltration. Accordingly it would appear that the amount of serum which can be safely injected intraspinally in children without danger of producing further injury to the brain stem must be small. At the same time it seems highly desirable to inject larger amounts intravenously in order to effect as rapid a neutralization of the virus as possible. In young children, in whom the median basilic vein is too small to find, we have regularly turned the head to one side; and if pressure is made with the finger just above the clavicle, the external jugular vein stands out very prominently even in infants, and can be readily entered by the needle. From 15 to 30 c.c. of serum are slowly injected intravenously.

CLINICAL PICTURE FOLLOWING SERUM THERAPY

In many of the acute cases the administration of serum has been followed by a critical fall in the temperature occurring from twelve to thirty-six hours;

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[9] Amos, H. L., and Wollstein, Martha: A Method for the Rapid Preparation of Antimeningitis Serum, Jour. Exper. Med., 1916, 23, 403.

after injection. Coincident with this there is a slowing of the pulse rate and definite clinical evidence of general improvement. The initial rise in the temperature usually attributed to the injection of human serum has occurred in only a very few cases. When the temperature has remained high we have repeated the intravenous injection in a few patients within twelve hours after the first treatment. It has seemed to us that the temperature may well serve as a guide to the optimum dosage of serum. Serum reactions have occurred in approximately one third of our cases usually from five to eight days after injection, and manifest themselves as an urticaria which disappears within from twenty-four to forty-eight hours. These have always rapidly disappeared, and beyond the transient discomfort to the patient, have appeared of little consequence.

ANALYSIS OF CASE HISTORIES

During the latter part of the Chicago epidemic of 1916, one of us (J. W. N.) first treated a small series of ten cases of typical poliomyelitis by intraspinal and intravenous injections of the immune serum produced by injections of the poliomyelitic coccus in the sheep. The first patient was treated, Dec. 29, 1916.[10] Ten patients in all were treated, with one death. Two patients who received early treatment recovered completely and warrant brief consideration:

CASE 1.—G. S., girl, aged 8 years, Dec. 27, 1916, had headache and vomited. December 28, there was weakness of both legs. December 29, she was admitted to the hospital, with temperature of 99.6 F. She was stuporous. The pupils were dilated and unequal. The right leg was flaccid, and the patellar jerk was absent. The left leg was weak. There was paralysis of the urinary bladder, and incontinence of both urine and feces. The bladder was distended to the level of the umbilicus.

December 29, 15 c.c. of immune serum were injected intraspinally and 20 c.c. serum intravenously. January 6, the child appeared bright and took nourishment. Twenty c.c. of serum were injected intravenously, January 9. The bladder and the bowels were acting. The paralysis never progressed, and after a sojourn of five weeks in the hospital the patient was discharged with a complete return of function of both legs.

CASE 2.—Mrs. B., aged 25, March 1, 1917, had headache, coryza and drowsiness. March 4, she was unable to move her legs. There was incontinence of urine and feces. March 5, she was admitted to the hospital. There was flaccid paralysis of both legs, with loss of Achilles and knee jerks. The bladder was distended with urine. There was apparent weakness of both hands. There was bilateral ptosis. The cerebrospinal fluid was clear, with 85 cells per cubic millimeter and positive globulin tests. March 6, 15 c.c. of serum were injected intraspinally and 20 c.c. intravenously. March 8, 25 c.c. of spinal fluid were withdrawn and 15 c.c. of serum injected intraspinally. March 9, the temperature was normal and there had been no spread of the paralysis. March 14, the patient talked irrationally and complained of difficulty in seeing objects. March 20, a plaster cast was applied to the legs by Dr. Parker.

The patient made a complete recovery, and walked out of the hospital, April 12, 1917. She has been examined on two subsequent occasions, and has regained her tendon reflexes and apparently complete function of her legs.

The foregoing cases served to emphasize the possible value of serum therapy and the importance of early administration of serum. The first patient was treated within forty-eight hours after definite symptoms of meningeal invasion. The second patient came under treatment at a later date when the paralysis was marked and rather disseminated over the cerebrospinal axis. Both patients received repeated injections of serum intravenously and intraspinally, and both made a good recovery.

During the present epidemic of 1917 and up to October 1, we have treated a total of 159 patients. During the same period, 250 patients have been admitted to the isolation wards of the Cook County Hospital on the services of Drs. Francis, Hoyne, Blatt and Irish, to whom we are indebted for the opportunity to treat and study these patients. All patients have been admitted in rotation to the services of these different attending physicians, and all patients admitted on one of these services have served as controls so far as they have not been treated with immune serum. The observation was made early in the course of serum therapy that patients with respiratory paralysis represent the end-picture in infantile paralysis and are not benefited either by serum therapy or by any other known treatment. Seven patients with typical respiratory paralysis have been given serum as a last resort without any apparent beneficial effects. These seven patients have been included in our total number of nineteen deaths in cases in which the patients received serum therapy. More recently we have not treated patients exhibiting an advanced respiratory paralysis at the time of admission to the hospital. With this possible exception there has been no selection of cases for serum treatment.

We have thus far treated 159 patients admitted to the Cook County Hospital in all stages of infantile paralysis. Of these 159 cases, nineteen patients have died, giving a mortality rate of 11.9 per cent. Excluding seven patients admitted to the hospital with advanced respiratory paralysis and dying within a short time after admission, to whom serum was given as a last resort, we have twelve deaths with a mortality rate of 7.5 per cent. At first glance these figures are in striking contrast to the total number of 100 patients admitted to the hospital during the same period of time and not receiving serum therapy. Of these 100 patients, thirty-eight died, a mortality rate of 38 per cent. However, it must be stated in all fairness that of these 100 untreated cases, twenty-five patients had an advanced respiratory paralysis on admission.

MORTALITY IN PATIENTS TREATED WITH SERUM IN THE COOK COUNTY HOSPITAL AS COMPARED WITH UNTREATED CASES FROM JULY 20 TO OCT. 1, 1917

	Total Cases	Deaths	Mortality, Per Cent.
Untreated cases	301	97	32
Serum treated cases	152	12	7.5

The mortality rate of a series of serum treated cases as compared with a series of untreated cases occurring during the same period of time and during the same epidemic of 1917.

For purposes of analysis and comparison we have divided the patients treated with serum into two groups. Group 1 comprises a series of fourteen cases in which no definite paralysis could be detected at the time serum treatment was instituted. This group has been further subdivided into Class 1, comprising ten typical preparalytic cases in all of which the history, clinical examination and spinal fluid findings were positive for poliomyelitis, and Class 2, consisting of four patients presenting the clinical picture of the meningeal or encephalitic type of the disease, namely, rigid neck, opisthotonos, stupor, muscular twitchings, spastic extremities, etc. Group 2 comprises a series of 141 patients, all exhibiting varying degrees of paralysis at the time of treatment. This group has for convenience been subdivided into Class 1, composed of patients in whom the paralysis appeared to be spreading, and Class 2, consisting of patients with definite paralysis of varying duration. Brief summaries are given of instructive case histories illustrating the various group divisions:

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[10] A brief preliminary report of the results attained appeared in the Bulletin of the Chicago Medical Society, April 21, 1917.

GROUP 1. NO PARALYSIS AT THE TIME OF TREATMENT (TEN CASES)

Class 1. Preparalytic Cases

Case 98.—Boy, aged 18 months, Sept. 17, 1917, had fever and showed irritability. September 18, he complained of pain in the legs when made to stand. September 19, he was admitted to the hospital. The temperature was 101.4, the pulse 120, and respirations 26. The cerebrospinal fluid revealed 120 cells per cubic millimeter. Globulin tests were positive. No paralysis was detected. September 19, at 2 p. m., 5 c.c. of serum were injected intraspinally and 15 c.c. intravenously. September 20, the temperature was normal and no paralysis ever developed.

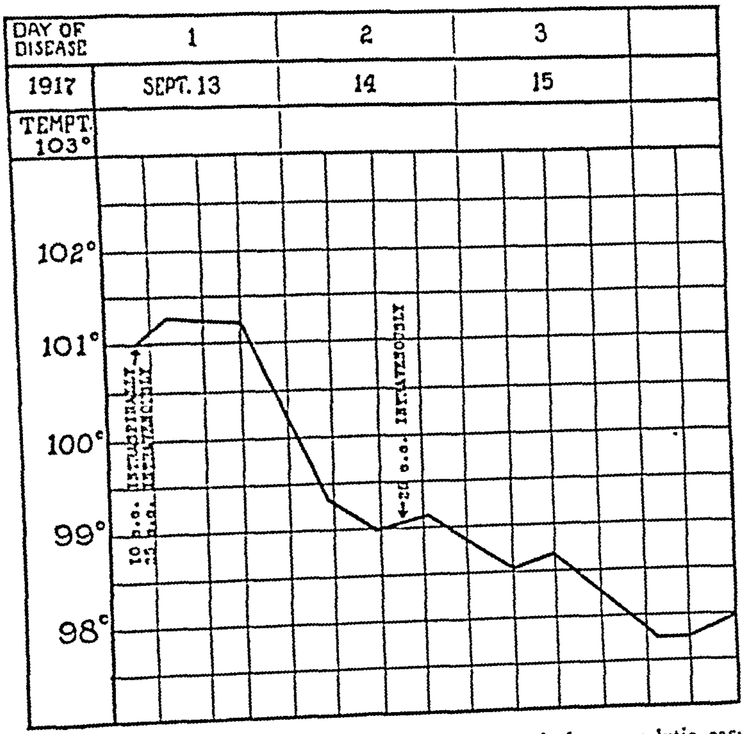

Chart 1 (Case 79).—Temperature curve in a typical preparalytic case of poliomyelitis in which the patient developed a transitory right sided facial paresis thirty-six hours after the first injection of serum. This patient made a complete recovery.

Serum was given forty-eight hours after the first symptoms, and the temperature fell from 101.4 to normal within twenty-four hours and paralysis never developed.

Case 79.—Boy, aged 3 years, Sept. 13, 1917, was brought to the hospital by the mother, who stated that the patient complained of headache, pains in the legs and the back of the neck, and felt too sick to get out of bed that morning. On admission the temperature was 101. The spine sign was positive. The cerebrospinal fluid revealed 27 cells per cubic millimeter. Globulins were + + +. No paralysis was detected. September 13, 10 c.c. of serum were injected intraspinally and 25 c.c. of serum intravenously. September 14, the temperature was 99.2. Twenty-five c.c. of serum were injected intravenously. September 15, the temperature was normal. September 18, a definite right sided facial paresis had appeared, which, however, was transitory, and the patient recovered completely.

This patient received serum within twelve hours after the first symptoms appeared. The interesting feature of this case is the appearance of a facial paresis five days later, which lasted only two days, and recovery was uneventful.

Case 13.—Girl, aged 3 years, Aug. 15, 1917, on admission to the hospital, had a temperature of 101; the pulse was 120, the respirations, 22. There were fine twitchings of the muscles of the entire body. There was left sided facial paresis, with ptosis of the left upper eyelid and drooping of the left corner of the mouth. No paralysis was detected. The cerebrospinal fluid was clear, with 59 lymphocytes. The globulin was increased. August 15, 10 c.c. of serum were injected intraspinally and 18 c.c. intravenously. August 16, the temperature was normal. Ten c.c. of serum were injected intraspinally. Recovery was complete.

Case 46.—Girl, aged 6 months, Sept. 2, 1917, had fever and vomited. September 4, the child was drowsy and irritable. September 5, she was admitted to the hospital. The temperature was 99.6, the cerebrospinal fluid, 170 cells per cubic millimeter. The globulin was + + +. No paralysis was detected. Ten c.c. of serum were injected intravenously. September 8, 10 c.c. of serum were injected intravenously. The temperature was normal the following day, and paralysis never developed.

Case 17.—Girl, aged 10 months, Sept. 18, 1917, was admitted to the hospital with a history of fever and vomiting two days before. The temperature was 99, the pulse, 120, and respirations, 26. No definite paralysis was present, but the right arm and shoulder appeared paretic. The cerebrospinal fluid revealed 42 lymphocytes per cubic millimeter. The globulin test was + + +. September 18, 12 c.c. of serum were injected intravenously. The weakness of the right arm and deltoid rapidly disappeared, and recovery was uneventful.

Ten patients, all undoubted instances of preparalytic poliomyelitis, have been treated with immune serum in the early stages of the disease, with prevention of paralysis and complete recovery in 100 per cent. Whether or not paralysis would have developed in all of these patients without serum treatment cannot be determined. As to the apparent advantage of the early administration of serum, there can be no doubt.

Class 2. Meningeal Type (Four Cases)

Case 30.—Girl, aged 22 months, Aug. 24, 1917, was admitted to the hospital. No history of the duration of the illness was available. The temperature was 101.6. The child was extremely rigid and stuporous. There were involuntary twitchings of the arms and hands. The legs were spastic. There was marked tremor of the neck and face muscles. No paralysis was detected. The cerebrospinal fluid was clear; pressure was markedly increased, and there were 154 cells per cubic millimeter, with globulins increased. August 25, 20 c.c. of serum were injected intravenously. August 26, the temperature was 101. Five c.c. of serum were injected intraspinally and 15 c.c. intravenously. The temperature reached

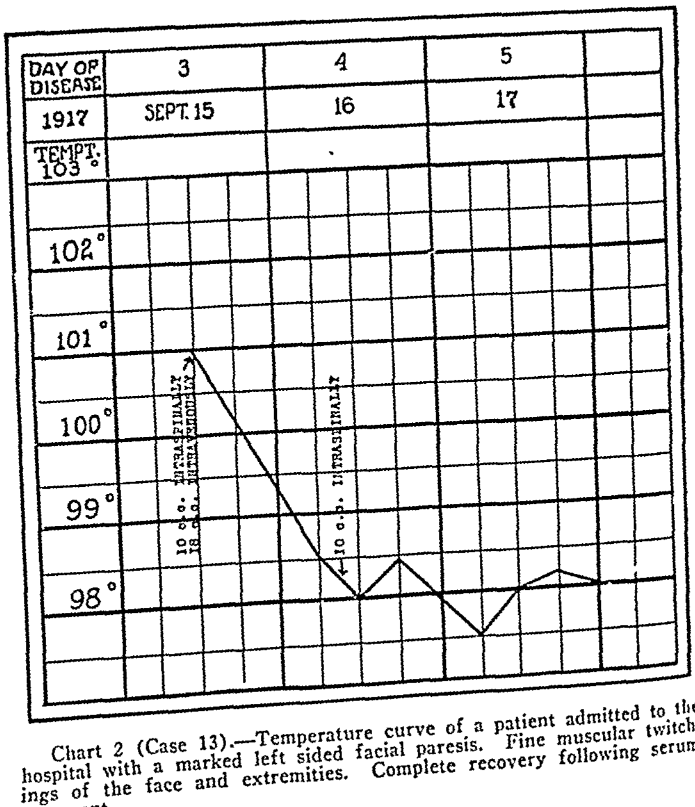

Chart 2 (Case 13).—Temperature curve of a patient admitted to the hospital with a marked left sided facial paresis. Fine muscular twitchings of the face and extremities. Complete recovery following serum treatment.

normal within forty-eight hours, stupor and rigidity of muscles disappeared, and the patient made a complete recovery.

CASE 36.—Boy, aged 3 years, Aug. 30, 1917, was admitted to the hospital. Illness began five days before. The patient lay quiet on the bed, the head retracted and rigid, with marked spasticity of both arms and legs. The reflexes were exaggerated. No paralysis was detected. He cried out when the chin was flexed on the abdomen. The cerebrospinal fluid was clear and contained 320 cells per cubic millimeter, with positive globulin tests. August 30, 5 c.c. of serum were injected intraspinally and 12 c.c. intravenously. August 31, 6 c.c. of serum were injected intraspinally and 15 c.c. intravenously. The patient made a complete recovery.

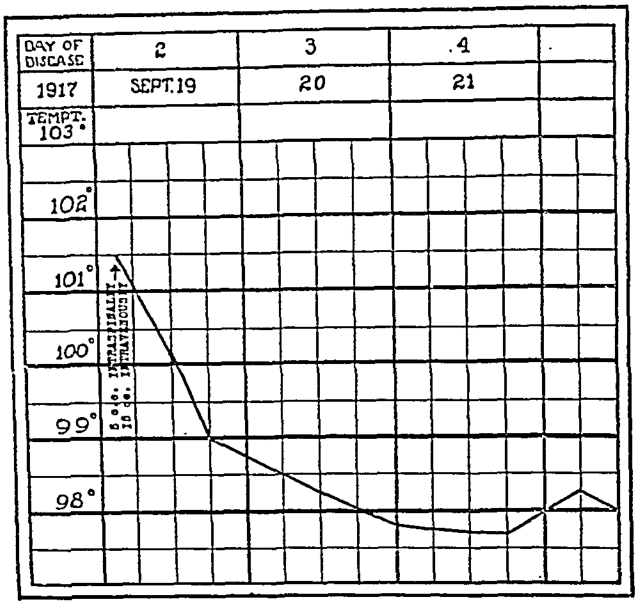

Chart 3 (Case 98).—Temperature curve in a typical preparalytic case of poliomyelitis. Spinal fluid contained 120 cells per cubic millimeter with positive globulin tests. Serum injected thirty-six hours after onset of fever and pain in legs. Note the critical fall of the temperature, with rapid and complete recovery.

The foregoing cases are instructive in that they simulate the clinical picture of meningitis. The disease expends its greatest insult on the upper motor neuron, and the mortality of this type of cases is high. We have treated four meningeal types of poliomyelitis with one death, a recovery rate of 75 per cent.

GROUP 2. CASES SHOWING PARALYSIS AT TIME OF TREATMENT

CLASS 1. PARALYSIS EXTENDING

CASE 26.—Boy, aged 5 years, Aug. 21, 1917, was admitted to the hospital with a history of onset two days previously and the condition growing worse. The child was acutely ill. He could not move head or arms. There was paralysis of the sternocleidomastoid muscles. The head fell backward when the patient was lifted by the arms. There was flaccid paralysis of both arms, and the patient could move the fingers only slightly. The temperature was 100. The cerebrospinal fluid revealed 33 cells per cubic millimeter. The globulin was + + +. August 21, 10 c.c. of immune serum were injected intraspinally and 25 c.c. of serum intravenously. August 22, the respirations were embarrassed. There was slight cyanosis. Ten c.c. of serum were injected intravenously, 5 c.c. intraspinally, and 10 c.c. intramuscularly. August 23, the child was given 20 c.c. of serum intramuscularly. The patient regained good use of the left arm and hand, but the paralysis of the neck, muscles and right arm remained unchanged.

This case is interesting because the location and extent of the paralysis were against the patient's chances for recovery. The early convalescence was stormy, and at one time it was thought that the child had developed a respiratory paralysis. He was given a total of 80 c.c. of serum, and recovered, with good use of the left arm. Whether or not the serum prevented a fatal respiratory paralysis cannot be determined; but we do know that this class of untreated cases has been attended by a high mortality.

CASE 28.—In a girl, aged 6 years, the illness began Aug. 18, 1917, with a convulsion followed by pains in the legs and the back of the neck. August 23, there was weakness of the right leg, and the child became stuporous. August 24, she was admitted to the hospital with the tentative diagnosis of epidemic meningitis. The temperature was 101, the pulse, 128, and respirations, 30. The child was stuporous, and there was flaccid paralysis of both legs. The neck muscles were paretic. The spinal fluid was clear and contained 171 cells per cubic millimeter. The globulin test was + + +. August 24, 10 c.c. of serum were injected intraspinally and 20 c.c. intravenously. August 25, the temperature was 99. The stupor was gone. General improvement was noted. Eighteen c.c. of serum were given intravenously. The temperature reached normal twelve hours after the second injection of serum. The patient was discharged from the hospital, September 24, with paralysis of the legs but slightly improved.

Whether the prompt subsidence of the stupor and the critical drop in temperature can be ascribed to the serum treatment cannot be definitely determined. The paralysis did not progress.

CASE 3.—The onset in a girl, aged 2 years, occurred, July 26, 1917, with headache, fever and vomiting. July 28, there was flaccid paralysis of both lower extremities with weakness of the neck muscles and paresis of both arms. July 29, when she was admitted to the hospital, the temperature was 103, the pulse, 150, and respirations, 60. There was flaccid paralysis of both lower and upper extremities. There was beginning respiratory involvement. The spinal fluid revealed 47 cells per cubic millimeter. Ten c.c. of serum were injected intraspinally after previous withdrawal of 15 c.c. of spinal fluid. July 30, the temperature was 100. The patient had developed a marked respiratory and facial paresis. Spinal puncture was performed and 15 c.c. of fluid withdrawn slowly. Five c.c. of serum were injected intraspinally and 5 c.c. intravenously. July 31, the temperature was 103, the pulse, 174, and respirations, 64. The child died.

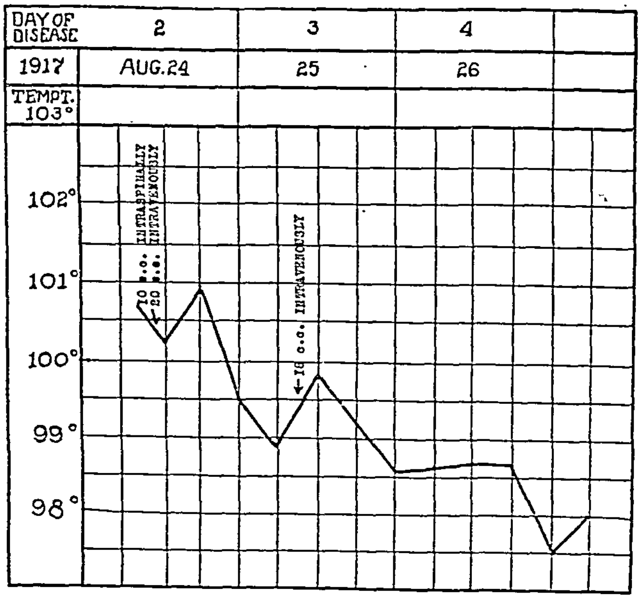

Chart 4 (Case 28).—Temperature curve of a patient admitted to the hospital with flaccid paralysis of both legs. Marked stupor and rigid neck. This patient recovered, with partial use of the legs.

This case is of interest for several reasons. It represents the typical form of Landry's paralysis with rapid ascending progression of the paralysis and ultimate involvement of the respiratory center and death. Not a few similar cases have occurred in this epidemic. The optimal time for serum treatment obviously was between July 26 and July 28. Seventy-two hours after the onset and at a time when all the extremities were paralyzed, the respiratory center involved, and the prognosis certain, 10 c.c. of serum were given intraspinally. The temperature dropped from 103 to 100, and accordingly a second dose of 10 c.c. serum was administered. Death occurred, July 31. This case serves to confirm the impression gained of the futility of any form of treatment after the respiratory center has become involved. Furthermore, we subsequently learned that the best results have been obtained in those patients receiving larger doses of serum.

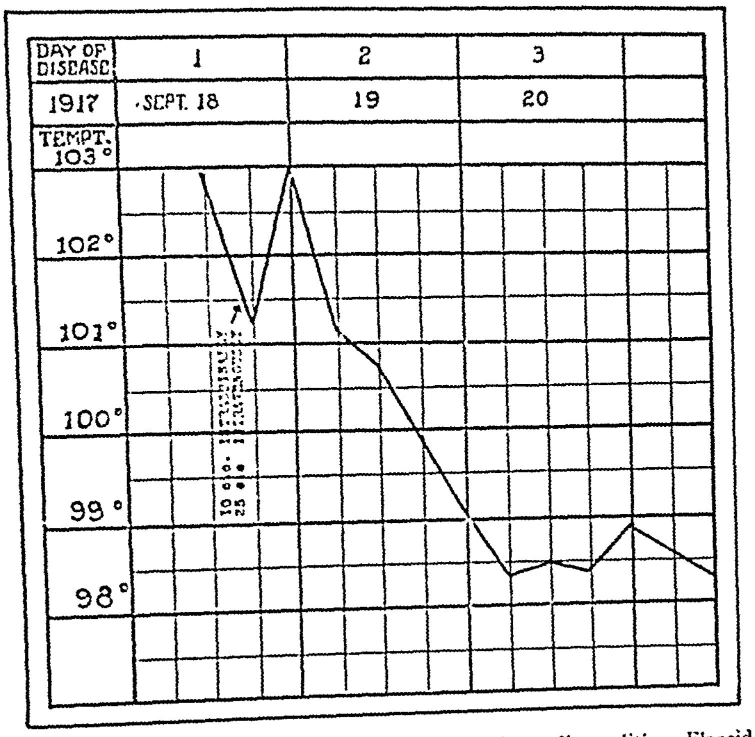

Chart 5.—Temperature curve of a patient with poliomyelitis. Flaccid paralysis of both legs with paresis of the right arm and shoulder. Duration of paralysis, seventy-two hours. The weakness of the arm disappeared rapidly following serum, and the paralysis did not progress. The legs remained flaccid.

Case 74.—Boy, aged 2 years, Sept. 9, 1917, had fever, headache and vomiting. September 10, there was weakness of both legs. September 12, he was admitted to the hospital. The temperature was 100. There was flaccid paralysis of the right leg. Weakness of the left leg was marked. The head fell backward when the child was raised by the shoulders, and the neck muscles were paretic. The cerebrospinal fluid was clear and contained 50 cells per cubic millimeter. The globulin test was + + +. September 12, 6 c.c. of serum were injected intraspinally, and 20 c.c. intravenously, and September 14, 10 c.c. intraspinally and 20 c.c. intravenously. September 15, the temperature was normal and has remained normal to date. The paresis of the neck muscles and right leg rapidly disappeared. The flaccid paralysis of the left leg still remains.

Serum therapy was instituted forty-nine hours after the onset of paralysis in this patient. A total of 50 c.c. of serum was injected, and the temperature dropped to normal within twenty-four hours. The paresis of the right leg never progressed, and the weakness of the neck muscles rapidly disappeared. This coincides with our observations that it is much easier to prevent paralysis altogether and to lessen the spread and severity than to effect its rapid retrogression.

Class 2. Paralysis Present

Case 95.—Boy, aged 5 years, Sept. 13, 1917, had fever, headache and vomiting. September 17, he had pain in the left shoulder and back, and was unable to use the left arm. September 17, he was admitted to the hospital. The temperature was 103. Pain was elicited on manipulation of the left shoulder. There was definite paresis of the left shoulder muscles. The cerebrospinal fluid was clear and under increased pressure; it contained 21 lymphocytes per cubic millimeter. Globulin was increased. September 17, 10 c.c. of serum were injected intraspinally and 25 c.c. intravenously. The temperature dropped to normal within thirty-six hours. There was no extension of the paralysis. On discharge from the hospital the child has regained complete muscular power in the left shoulder girdle and arm.

Case 4.—Onset in a boy, aged 9 months, occurred, July 27, 1917, with fever and vomiting. July 28, weakness of both legs was noted and inability to stand. July 29, on admission to the hospital, the temperature was 101. There were complete flaccid paralysis of the left lower extremity, and weakness and paresis of the right leg. The cerebrospinal fluid contained 33 cells per cubic millimeter. Globulin tests were positive. July 29, the patient received 10 c.c. of serum intraspinally. July 31, the temperature was 99.2; 5 c.c. of serum were injected intraspinally. August 2, the temperature was normal. No extension of the paralysis had occurred. August 4, 5 c.c. of serum were injected intraspinally and 10 c.c. intravenously. The paresis of the right leg cleared up. The left leg remained flaccid on the patient's discharge from the hospital.

Case 97.—Onset in a boy, aged 10 years, occurred, Sept. 15, 1917, with headache, fever and vomiting. September 18, there was weakness of both legs, and the patient could not stand up. September 19, on admission to the hospital, the child appeared acutely ill. There was paralysis of both legs, with loss of tendon reflexes. Both arms were paretic, and he could move only the fingers. The spinal fluid was clear and contained 109 cells per cubic millimeter with globulin + + +. September 18, 15 c.c. of serum were injected intraspinally and 20 c.c. intravenously. September 21, the temperature was normal and has remained normal to date. The paresis of the arms has rapidly disappeared, and the patient has good use of the arms and the hands. September 30, the

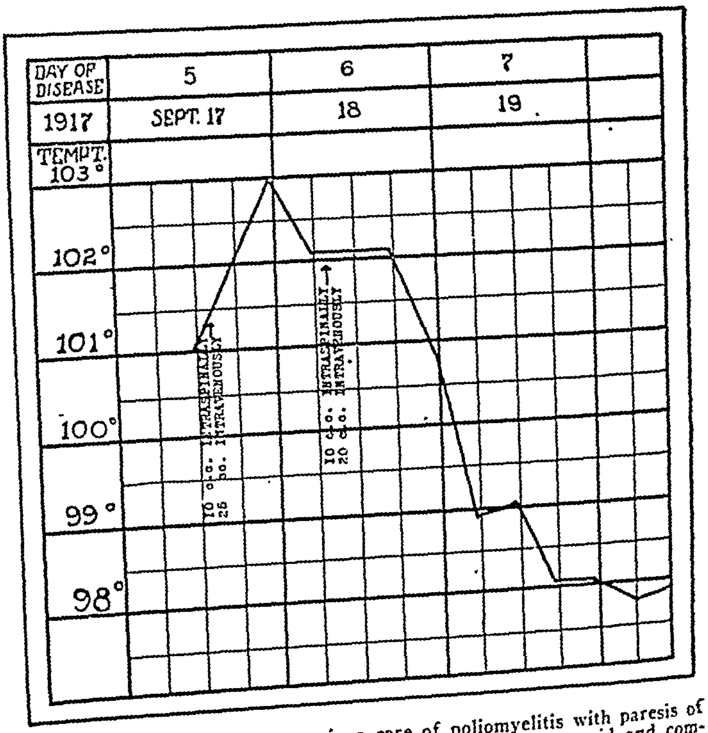

Chart 6.—Temperature curve in a case of poliomyelitis with paresis of the muscle groups of the left shoulder. Patient made a rapid and complete recovery following serum treatment.

legs have remained flaccid, and the Achilles and patellar reflexes are still absent.

CASE 6.—Girl, aged 11 months, Aug. 2, 1917, was admitted to the hospital with a history of the onset of paralysis seventy-two hours before. The temperature was 102. There was flaccid paralysis of both legs, with loss of reflexes. There was left sided facial paralysis. The neck was rigid and the spine sign positive. There was spasticity of both arms. August 3, 3 c.c. of serum were injected intraspinally and 10 c.c. intravenously. August 4, the temperature was 101.4. The condition remained unchanged. Three c.c. of serum were injected intraspinally and 10 c.c. intravenously. August 5, the temperature dropped to normal and has remained normal to date. The facial paralysis and rigidity of the neck rapidly disappeared. The legs are still flaccid.

CASE 65.—The onset of disease in a boy, aged 14 months, occurred Sept. 4, 1917, with fever and vomiting. September 9, paralysis of both legs developed. September 11, on admission to the hospital, the temperature was 100. There were flaccid paralysis of the legs and a paresis of the neck muscles. Six c.c. of serum were injected intraspinally and 25 c.c. intravenously. There was a critical drop in temperature to normal within twenty-four hours after the injection. The weakness of the neck muscles rapidly disappeared. The paralysis of the legs has remained unaltered.

CASE 118.—The onset in a girl, aged 1 year, occurred, Sept. 22, 1917, with vomiting and fever. She was admitted to the hospital, September 23, just twenty-four hours after the first symptoms. The temperature was 102. The child appeared acutely ill. There was marked left sided facial paralysis, with inability to close the left eye. The left corner of the mouth drooped completely. No paralysis of the extremities was detected. The spinal fluid contained 21 lymphocytes per cubic millimeter, with positive Noguchi, Nonne and Ross Jones tests. September 23, just twenty-four hours after the onset, 5 c.c. of serum were injected intraspinally and 15 c.c. intravenously. A critical drop of the temperature to normal occurred the following day. Paralysis has never appeared in the extremities. September 30, facial paralysis is disappearing, and the prognosis for complete recovery is excellent.

CASE 107.—Girl, aged 2½ years, Sept. 16, 1917, had fever and headache. September 20, weakness of the left arm appeared. September 21 she was admitted to the ward. The temperature was 101. The child appeared acutely ill. She was stuporous. The neck muscles were paretic. There was weakness of the left shoulder and arm. The deltoid muscle was paretic, with loss of reflexes in the left arm and shoulder. September 21, twenty-six hours after the onset of weakness of the shoulder and neck muscles, 10 c.c. of serum were injected intraspinally and 25 c.c. intravenously. September 22, the condition had improved and the stupor was gone. Ten c.c. of serum were injected intraspinally and 20 c.c. intravenously. September 25, the temperature reached normal, and there had been a rapid general improvement. The paresis never progressed. The child can move the left arm in all directions, and the prognosis appears excellent for complete recovery.

The foregoing case histories are included to illustrate the definite value of serum treatment in preventing the spread of the paralysis. All of these patients were treated at the optimal time, from twenty-four to forty-eight hours after onset. It will be noted that while the paretic muscles and weakness of the extremities rapidly disappeared following serum therapy, flaccid paralyses remained unaltered.

COMMENT

We have treated a series of 159 cases of poliomyelitis with immune serum prepared in the horse by repeated intravenous injections of the coccus isolated chiefly from human poliomyelitic sources. Prior to its use in man, we have proved that this serum, prepared in the horse in the manner outlined above, possesses both protective and curative properties in experimental poliomyelitis in monkeys. We proceed now to the estimation of the value of the serum in human poliomyelitis. It is obvious that the value of serum must be based both on the clinical study and impressions gained in the treatment of individual cases, and on statistical evidence acquired after treatment of a large series of cases properly controlled.

Of the group of fourteen cases of undoubted instances of poliomyelitis in which no paralysis could be detected at the time serum treatment was instituted, thirteen patients recovered completely and one died. None of these patients developed paralysis, subsequent to serum treatment. These facts serve to substantiate the impression gained from the treatment of the entire series of cases, that it is much easier to prevent paralysis altogether and definitely to arrest the extension and lessen the severity of the paralysis than to bring about its rapid disappearance. It should be mentioned in this connection, however, that we have repeatedly observed definite weakness or paresis of extremities rapidly disappear following serum therapy. Furthermore, of the entire 159 cases treated in all stages of paralysis, in only three late cases has the paralysis extended to the respiratory center with a fatal result. This is significant when we recall the unusually high mortality of the present epidemic with the relatively large number of fatal respiratory paralyses among untreated patients.

Regarding the mortality rate, we have thus far treated a total number of 159 patients with nineteen deaths, a mortality of 11.3 per cent. Mention should be made of the fact that of these nineteen fatal cases, seven patients were admitted to the hospital with advanced respiratory paralysis, and all died within periods varying from seven to seventy-two hours after admission. These patients have been included in estimating the total mortality, obviously an unfair test for estimating the therapeutic efficiency of the serum.

From statistics kindly furnished by the Health Department of the city of Chicago, a total of 301 cases were reported with ninety-seven deaths, a mortality of 32 per cent. for the period of July 20 to Oct. 1, 1917. During this same period of time we have treated a series of 152 patients, excluding seven respiratory paralyses on admission, with twelve deaths, giving a mortality rate of 7.5 per cent.

In by far the majority of patients receiving serum, the fever, at times high, has fallen rapidly to normal within periods varying from twelve to twenty-four hours. Coincident with this critical drop of the temperature there usually occurs a slowing of the pulse rate and other clinical evidence of rapid general improvement.

Finally, we wish to consider briefly the extremely important problem of the dosage and mode of administration of the serum. A careful analysis of the case histories suffices to demonstrate the harmlessness of the serum when slowly injected both intraspinally and intravenously. The serum has always been tested for sterility after passage through a Berkefeld filter, and has been used without a preservative. It must be free from corpuscles and hemoglobin.

As in other acute infectious diseases, recovery from poliomyelitis must depend on the process of self-immunization. Accordingly, the simultaneous intraspinal and intravenous injections of immune serum afford the most rapid way of flooding the central nervous system with specific antibodies to neutralize the virus of the disease. We have attempted to treat all cases as early as possible with relatively large doses of serum. Obviously the amount of serum that can be safely given to a child intraspinally is small. Accordingly, we have regularly injected small doses of from 5 to 10 c.c. of serum very slowly by the gravity method after the previous withdrawal of an equal or greater amount of spinal fluid. At the same time intravenous doses of from 10 to 30 c.c. of serum are given according to the age of the patient. In many patients we have repeated the intravenous injections at twelve to twenty-four hour intervals, using the temperature as a guide to dosage, with beneficial results. The majority of patients have received total amounts of serum varying from 40 to 75 c.c., depending on the age and severity of the case. In a few critical cases we have injected a total amount of 150 c.c. within seventy-two hours, with beneficial results.

SUMMARY

1. Of 159 patients receiving serum in all stages of the disease, nineteen died, a mortality of 11.9 per cent. Among 100 cases occurring during the same period of time, in which the patients did not receive serum, thirty-eight patients died, a mortality of 38 per cent.

2. We have treated 152 patients in all stages of infantile paralysis, excluding seven cases presenting respiratory paralysis on admission, with eleven deaths —a mortality rate of 7.2 per cent. During this same period of time a total of 301 cases were reported to the Health Department with ninety-seven deaths—a mortality of 32 per cent.

3. This series of treated cases suffices to demonstrate the harmlessness of serum treatment when the serum is free from hemoglobin, sterile to repeated cultures, and the injections are slowly made and all known rules of precaution are observed.

4. The serum appears to possess the power of definitely preventing the onset of paralysis when administered early in the disease. In ten undoubted instances of poliomyelitis in which no paralysis was detected at the time serum was administered, prevention of paralysis and complete recovery resulted in 100 per cent.

5. The action of the serum is more definite in arresting the extension of paralysis and diminishing the severity than in effecting its disappearance.

6. As in other acute infectious diseases, the earlier the serum is administered, the more striking are the results obtained.

7. Serum should be injected intraspinally in small doses and at the same time intravenously in larger amounts. The temperature has been employed as a guide to the dosage.

8. The injection of serum is followed by a critical fall in the patient's temperature. Coincident with this there occurs a slowing of the pulse rate, and usually other definite clinical evidence of general improvement.

9. In doubtful early cases the decision to use serum should rest on the bacteriologic, chemical and microscopic examination of the cerebrospinal fluid.

Negroes Show Lower Suicide Rates than White Persons. —The death rate from suicide among negro males is a little over one half as high as among white males, according to statistics of the Metropolitan Life Insurance Co. In 1916, the rate was 8.2 per hundred thousand insured. Negro females show the very lowest rates of any of the groups studied. The rate was 3.4 per hundred thousand in 1916, the total number of suicides being only twenty-two among over 650,000 insured colored women.

Military Medicine and Surgery

MILITARY SKETCHING AND MAP READING

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The ability to read maps is an absolutely essential qualification of a medical officer. Instructions conveyed to him in the field often contain references to maps. If he is unable to understand these references his efficiency is greatly impaired. Then, too, the question of shelter and cover from fire at distant points at which it might be desirable to establish sanitary formations can often be determined by reference to maps.

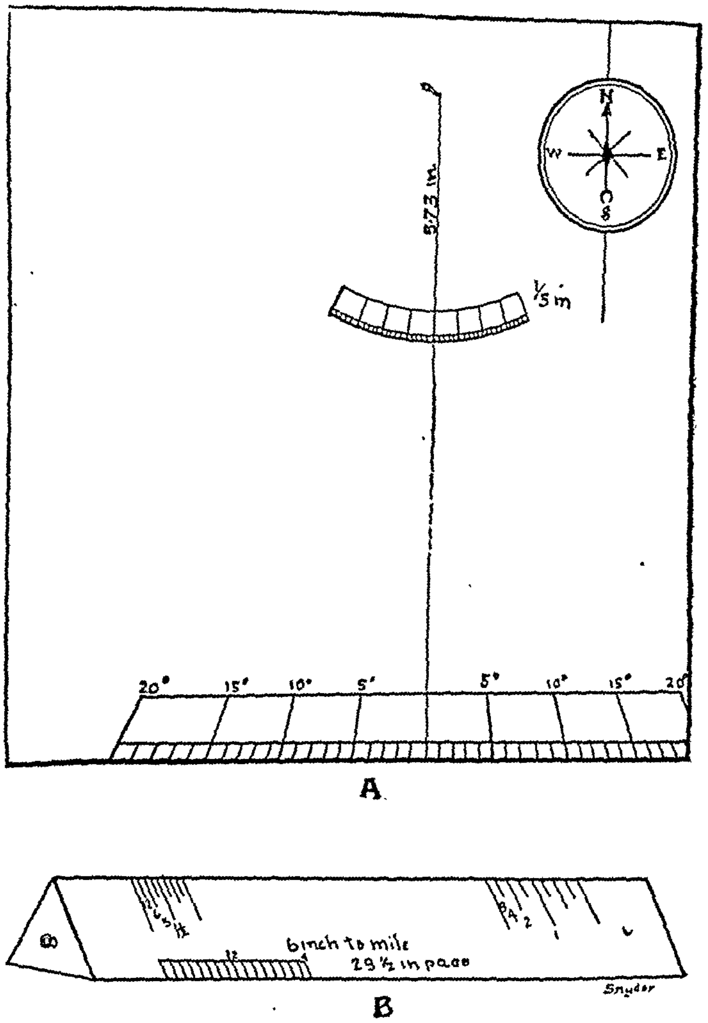

Fig. 1.—(*A*) This is merely a piece of a 1 by 12 inch board with angles of slope marked on it. With a plumb bob and line attached as shown, and sighting at an object over the top of the board the angle of elevation of the object is registered by the plumb line. Knowing this angle and the distance to the object, the elevation of the object can be readily ascertained from the degree scale on the alidade. (*B*) The alidade is a triangular ruler used for sighting at objects and drawing lines (rays) on the map. It has on its faces one's pace scale; also a degree scale, an inch scale and a hundred yard scale.

As the shortest road to map reading is through map making, the essentials of map making will be outlined. Ordinarily in two afternoons the general principles of map making can be mastered. In working out the principles of map making the essentials of map reading will be absorbed unconsciously.

ARTICLES NEEDED FOR MAP MAKING

Compass, alidade, slope board, tripod, paper, four thumb tacks, pencil with eraser, a pace tallier (convenient but not essential), a list of pace scales for paces from 28 to 36 inches (convenient but not essential) are needed.[1]

PROCEDURE

1. *Normal Step or Pace.*—This is determined in the following manner and marked on the alidade: One walks four times over a measured one-half mile course and counts the number of one's steps each time. These are added together and divided by four to get one's average number of steps or paces per one-half mile. There are 31,680 inches in one-half mile. This number is divided by the foregoing average. This gives the length of one's pace in inches. All sketches made should be on the scale of 6 inches equal 1 mile. One's pace on the list of scales furnished is located and a corresponding scale on the blank side of the alidade is marked. This scale of one's paces is necessary in order to step off distances and place them on one's sketch.

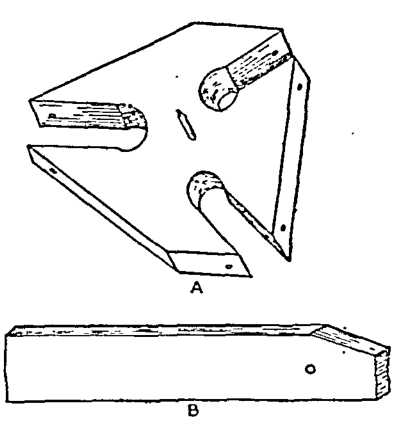

Fig. 2.—The tripod is easily made. A piece of board 2 by 4 inches, or preferably 2 by 6 and 6 inches long, is selected and three slots are made for the legs. Four strips of board about 1 by 1 by 4 inches serve as legs. With nails these are fastened into the slots. A nail is driven through the slotted piece from the bottom and projects through the top one-half inch. A nail hole three-fourths inch deep is made in the bottom center of the map board. A nail is driven through this hole and the tripod and the board are ready for setting up. *A*, head piece; *B*, leg.

2. *Slope Board and Tripod.*—A piece of 1 by 12 inch lumber about 1 foot long is taken for a slope board (Fig. 1). For a tripod three slender strips of wood about 4 feet long are chosen for the legs and are attached to a block of wood for the head piece, the legs being placed into slots and nails driven through them in order to hinge them. Through the center of the head piece, from below, a nail is driven and allowed to project through the upper side about one-half inch. A corresponding hole is made in the center of the bottom of one's map or slope board. This gives a pivot for one's map board on the tripod (Fig. 2).

3. *Degree Scale on Slope Board.*—One edge should be perfectly straight. A line perpendicular to this edge is drawn on the face of the board. On this line is drawn an arc of a circle with a 5.73 inch radius. The arc should extend about 3 inches on each side of the perpendicular, and the center of the circle should be on the perpendicular about one-fourth inch from the straight edge mentioned. Dots should be marked on this arc one-tenth of an inch apart, beginning at the perpendicular and going both ways. A pin is driven into the center of the circle. A thread 15 or 16 inches long should be tied to the pin. The thread is drawn taut, covering the perpendicular. It is then moved either way, still taut, until it covers a one-tenth inch dot. Then a dot is placed where the thread crosses the edge, opposite the straight edge. This should be done for fifteen or twenty dots on each side of the perpendicular. At each dot so made a line is drawn one-fourth inch long toward the center of the circle, except that at every fifth dot a line one-half inch long should be made. The long lines should be numbered 5, 10, 15, etc., on each side from the perpendicular as zero. This board is now a slope board for marking the degree of slope of hills, valleys and other objects (Fig. 1 A). When the alidade or a piece of lead is tied to the thread mentioned, acting as a pendulum, and a sight is taken along the straight edge of the board, the thread marks, on the edge opposite, the degree of slope of the hill, or other object sighted. The thread is caught at the proper point by pressing it against the board with the finger. If the elevation on which one stands is known or assumed, and the distance to the top of the hill is known, the elevation of the hill is readily calculated from degree scales on the alidade. The distance to the top of the hill can be readily ascertained by pacing, or by intersection or resection, as will be explained later.

4. *The Compass and Orientation.*—The compass points to the magnetic north, which is in Greenland. The variation from true north is called "declination of the needle." It can be readily ascertained by finding the true north, or from official maps. It is negligible in sketches. In order to make accurate sketches, whenever the map board is on its tripod, the board must be oriented, that is, it must be set in such a manner that directions on the map and the ground coincide. This is easily done by placing a compass on the board and getting its needle in line with a line previously drawn on the board. For convenience it is well to countersink a hole, compass-shaped, at one corner of the board and to draw an arrow passing through the needle pivot. The point of the needle must be kept on this line, and its north point must always point toward the arrow point. When this is done, the map and the ground directions always coincide.

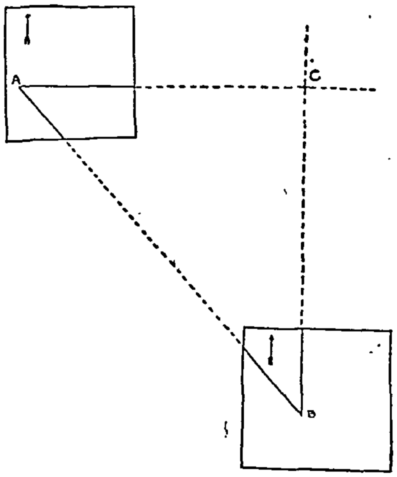

Fig. 3.—Location of a critical point by intersection. It is desired to locate point C on the ground at its proper place on the map. The map board is set up at A. The board is oriented. A ray is shot at B and C. One paces to B. The distance as laid off A to B on one's map. The board is again oriented. A ray is shot at C. The point at which the rays A-C and B-C cross is the proper place for C on the map.

5. *Critical Points.*—These are prominent points on the ground selected as points for exact location on the map. These points are located by (a) pacing, (b) intersection, (c) resection.

(*a*) By Pacing: A starting point is assumed and marked with a sharp pencil point on one's map (board oriented) with the map paper, and the country to be mapped, before one. From this point (A) a light line is drawn on the paper (called a ray) directly at the object (B), by sighting across the top of the alidade and pivoting the alidade on the map point by means of a sharp pencil. The alidade should always be kept at the left of the pencil. Before the ray is drawn, the needle should be again examined to be sure that orientation is exact. If it is not exact, it should be made so, and a new sight taken across the alidade. A ray should never be drawn on the map without a final look at the orientation in order to insure accuracy. When this ray is drawn (a very light line, so it may be erased if need be) one picks up the board and tripod and paces to the critical point, counting the steps. This distance is laid off on the ray by using the pace scale on the alidade. All superfluous rays are now erased.

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[1] Alidade and list of pace scales can be obtained from the book department, Army Service Schools, Fort Leavenworth, Kan., price 20 cents.

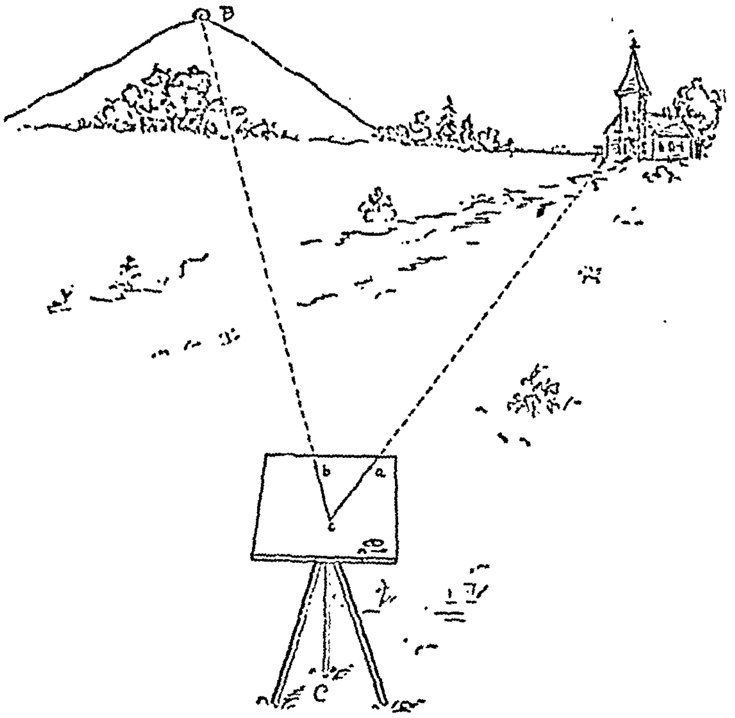

Fig. 4.—Location of a critical point by resection. This method locates on the map the point at which one is standing on the ground. Two critical points visible on the ground must already be located on the map, for example, the house A and the church B. The board is oriented. One pivots the alidade on *a* and sights at A, and standing at the rear of the map board a line is drawn along the alidade from *a* toward the body. This is repeated at *b*. The point at which *a-c* and *b-c* cross locates on the map the point at which one stands, or point C.

(*b*) By Intersection: We will assume that point C is off to one side of A and B, and that its location is desired. While at A a ray is shot at C (board oriented). Also when at B, a ray is shot at C (board oriented). Point C is the point at which these two rays intersect. A sharp point is made there, and marked C. These two rays (and all "dead" rays, that is, rays no longer needed) are erased, in order not to clutter up the map with useless lines (Fig. 3).

(*c*) By Resection: Often it is desirable to locate on the map the point at which one is standing on the ground. We will assume that one is on the ground at point C. The board is oriented and the alidade is pivoted on point A on the map by sighting at point A on the ground. A line is drawn from point A on the map, toward one's body, likewise another line is drawn from point B on the map. The point at which the two lines cross is point C. This point and all critical points are marked when found with a sharp pencil point (Fig. 4).

6. *Determination of Elevations.*—If it is unknown, an elevation is assumed for one's starting point. For example, point A may be assumed to have an elevation of 500 feet. It is desired to get the elevation of point H. Point H has already been located on the map by one of the three methods mentioned—pacing, intersection or resection. While at A the angle of elevation of H is obtained. We will assume it is 8 degrees. The 8 degree scale on the alidade is then found. Every time the distance for 8 degrees on the scale goes into the distance between points A and H on the map is a rise of 10 feet on a 6 inch to the mile map. We will assume the map distance from A to H is ten 8 degree distances. Then point H is 80 feet higher than point A and the elevation of H is 580 feet. Of course, if H is lower than A, it is 80 feet lower, and its elevation is 420 feet.

7. *Contours.*—These are lines cut on the earth's surface by imaginary horizontal planes at equal intervals from each other. They are needed on flat maps in order to show the elevation and shape of hills and valleys. All points on a contour line are of equal elevation. When contours are equally spaced the slope is uniform. Contours close to each other indicate a steep hill; far apart, gentle slope. Contour lines pass obtusely around slopes and acutely up streams or dry water courses. When the elevation of a critical point from another point is to be ascertained, the slope of the land should be noted, and for every intermediate contour indicated a dot should be placed. This should be done regularly. When the location and elevations of all critical points are determined, one should dot between them where contours would pass; all dots of equal elevation should be connected, and one's map is contoured. It should then give an accurate reproduction of the land mapped.

8. *Scales.*—In United States Army field sketches the normal system of scales is used. That means that the distance between contours called V.I. (vertical interval) varies regularly according to the scale of the map. If 1 inch on the map paper equals 1 mile on the ground map, the V.I. is 60 feet. If 3 inches on the map equal 1 mile on the ground the vertical interval is 20 feet; for a 6 inch map the V.I. is 10 feet, etc. Sixty divided by the scale of the map gives the vertical interval. This normal system was adopted in order to use the same degree scale for various sized maps. The distances on the degree scales on the alidade vary inversely with the angle. Those distances are called map distances between contours or M.D.'s. The M.D. for 1 degree is 0.65 inch. All other M.D.'s can be derived from this if no alidade is at hand. A pace scale is necessary in order to have a ready means of measurement of ground distances, readily convertible from the map into distances. Animal scale is the pace scale applied to a riding horse. The time required for the animal to go fixed distances at a walk or trot is, however, used as the standard unit instead of the length of its pace.

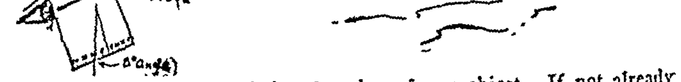

Fig. 5.—Determination of the elevation of any object. If not already known, an elevation for the point A where one stands is assumed. With the map board one sights at H, the point whose elevation is desired. The distance to H has already been determined by pacing, intersection or resection. We will assume the angle of sight is 8 degrees. From the alidade the elevation of H is then easily determined.

9. *Base Line.*—Any paced distance is a base line. A line is absolutely necessary in starting a map, before points can be located by intersection. Two critical points visible at the point to be resected and correctly located on the map are always necessary before a point can be located by resection. In intersection and resection the angle between the rays at the critical

point to be located must never be less than 30 degrees or greater than 100 degrees, as otherwise the rays are so nearly parallel that great error is possible.

10. *Conventional Signs.*—These are certain abbreviations or marks used in mapping to avoid writing out words—a map shorthand, as it were. They are very simple and are usually self explanatory.

11. *Types of Sketches.*—There are four types of sketches—road, position, outpost and place sketches. (*a*) The road sketch is a sketch of a road and an area extending about 400 yards on each side of it. As a rule all details needed can be obtained from high places in the road. It may be necessary at times to go to high places near the road. Bridges, fords, ferries, houses, woods, cultivated fields, nature of crops and soil, villages, high hills, valleys, streams, and other points of importance are noted on the sketch. These objects should be noted in all sketches when possible. (*b*) The position sketch is an area sketch of such a nature that the sketcher can visit, if desired, any point in the area to be sketched. (*c*) In the outpost sketch the observer can visit only the land in the rear of his outpost. (*d*) The place sketch is made from a single point of observation, as a tree or a high hill. In this sketch the observer must estimate distances. Sizes of known objects assist greatly in estimating distances. Distances between telegraph and telephone poles are also of great value.

12. *Comparison of Work.*—We will assume that ten men are mapping the same area, all having a different space but mapping on a 6 inch scale. When the maps are completed all similar distances should measure exactly the same on every map. Contours should look approximately alike.

13. *Sketching without Special Equipment.*—Articles needed: a watch, a piece of paper, a pencil and a flat surface for holding the paper. One's pace is determined and placed on a piece of paper on a 6 inch scale. If one has not this scale at hand, one should be devised. Means are readily at hand everywhere. Each time one starts to work on one's map, the map paper should be oriented by means of a watch (accurately recording sun-time, of course) as follows: The hour hand is pointed at the sun. Midway between the hour hand and 12 o'clock is the north and south line. The position of the sun will tell you which end is north. To get the hour hand pointing directly at the sun a match, or other straight slender object, is held so that its shadow falls across the face of the watch. The hour hand, pointing at the sun should lie directly in this shadow. Now one proceeds to make one's map by pacing, intersection or resection. A slope board is made on one's flat surface and a tripod and alidade are improvised if elevations are desired. Degrees of slope are readily placed on the alidade by remembering that 0.65 inch is the M.D. for a 1 degree slope; half that is the M.D. for a 2 degree slope, etc.

14. *Boundary.*—The boundary of any map sketched is made by connecting outermost critical points by straight lines.

15. *Data.*—When a sketch is completed the following data should be placed on it:

1. Name, rank and organization of sketcher.
2. Date of sketch.
3. Location of sketch.
4. Map scale and arrow pointing to magnetic north.
5. Elevation in figures of critical points if elevations are taken. Also contours.
6. A careful outline of water courses and dry runs.

MAP READING

As the principles of map making can be learned in a few hours it is always advisable to learn map making before map reading. When the anatomy of the map is mastered, map reading is simple. Hill slopes should be thought of in degrees so that by looking at the map one can say: That is an 8 degree hill, a 5 degree hill or whatever its height may be. This is of great value in determining whether the hill, ravine, or whatever topographic feature it may be gives protection from rifle or artillery fire. Slopes of the fall of bullets and shells should be learned in order to complete this valuable information.

VENEREAL DISEASE AND THE NEW ARMY

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What will be the history of these diseases in the new Army now being raised? This question is of utmost importance to the country at large for these reasons:

1. These diseases constitute the greatest factor producing nonefficiency in armies in training.

2. The increase of damage to the national health through the spread of these diseases.

3. The unprecedented opportunity afforded by the concentration of such a large proportion of the male population for public education on these diseases.

War always means the interruption and dislocation of existing conditions. The greater and larger the war and the larger the proportion of the population involved, the more extensive is the effect on the national life.

The history of these diseases in the armies, and more particularly in our own, will give us a safe indication of what may be reasonably expected under the same conditions. But today we are in possession of knowledge and agencies that were wanting until recently. What these are and what their effect is will be mentioned shortly.

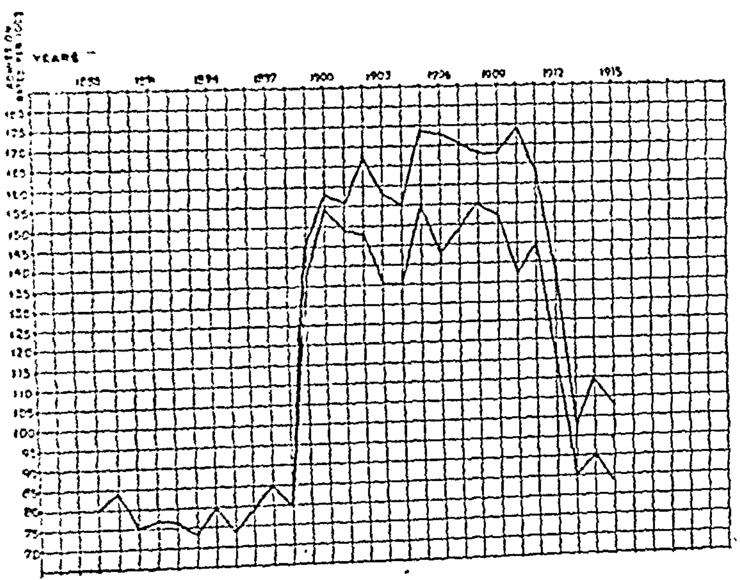
The history of venereal disease in the American Army can be most rapidly grasped by studying the annual admission rates for these diseases as shown in charts or tables. I have drawn a curve as made by these annual rates from 1888 to 1915, inclusive. The rates are those to be found in the annual report of the Surgeon-General to the Secretary of War.

The chart divides itself rather naturally into three parts representing stages radically different in character. The rates for these distinct stages differ markedly.

The first stage, from 1888 to 1898, covers the decade in which the U. S. Army was strictly continental. It was scattered in small commands mostly west of the Mississippi and in the southwestern states. The rank and file were, like the officers, professional soldiers and the age and length of service made these men "old soldiers." For the bulk of the troops the contact with cities and towns was casual and not daily. No regular physical inspection with special reference to venereal disease was frequently made, as is now done fortnightly. Ready and exact means of diagnosing syphilis did not exist. The Wassermann reaction and the cause of syphilis were not known. Naturally, as in civil practice, many cases of this disease appeared under other names, as it was not recognized, for instance, rheumatism and heart disease of some kind. Any one who reads the oration delivered by Sir William Osler before the London Medical Society, published in the *Lancet,* or having heard it delivered, as I had the privilege of doing, will understand the truth of this statement.

During this decade, there was no systematic centrally controlled propaganda to reduce venereal disease. The very attitude of the profession was different from what it is today. A deprecatory, sub rosa, hush atmosphere surrounded the subject. One looks in vain for a discussion of venereal diseases in the lay press. Mention of them was indirect even in the most bold quack advertisements. The word "syphilis" is not to be found in print outside of medical publications.

With these conditions characteristic of this decade in the Army, namely, isolation, no regular inspection for veneral disease, no systematic campaign to reduce the amount of venereal disease, and, in addition, the indefiniteness in diagnosis inseparable from the methods of that time, the average admission rate for the period may be taken as seventy-eight per thousand.



Curves showing the incidence of venereal diseases in the United States Army from 1888 to 1915. The rapid decrease in venereal diseases for the years from 1910 to 1913, following systematic measures instituted by the government for their control, should be noted.

The lower line shows rates for enlisted force in the United States. The upper line shows rates for all enlisted force both in United States and abroad.

1888-98.—During this decade the Army was stationed throughout the U. S., principally at small points. No compulsory physical inspection; no systematic propaganda to reduce venereal disease. The rates represent practically those patients unable to do duty. Cases not treated or in those doing duty were usually not recorded.

1898.—Spanish War Militia called into service.

1898-99.—Great change in Army. Marked expansion. Old soldiers disappear. Volunteers come in. Young recruits sent to Cuba, Porto Rico, Philippines.

1899-01.—Philippine Insurrection Troops in Cuba, Porto Rico, China.

1901-09.—High rates prevail in U. S. and abroad.

1909-11.—Principles of preventive medicine applied. Prophylaxis urged.

1911.—Syphilis increases. Wassermann test used in diagnosis.

1912.—Systematic measures. Fortnightly physical inspections and prophylaxis enforced by G. O. May 31. Pay stopped G. O. 31.

1914-15.—Concentration on Mexican Border.

The second stage, from 1898 *to* 1908, embraces the decade in which there were radical changes in army life introduced by the Spanish War. Conditions of war necessitated a sudden increase in the Army. Naturally new and untrained material was brought in. A dropping out of the "old" soldiers took place. The tropics were penetrated. The isolation of the old-Army in the West was a thing of the past. There was contact with cities, either from camps near them, or by waiting in them for transportation overseas, as at San Francisco and Manila, and finally there was association in the tropics with people on a lower social plane.

The most important factors are the breaking away from the home ties and control of a large number of young men, and their projection into surroundings to which they were unaccustomed.

This stage shows a double line. The outer or higher indicates the rates for the Army both in the United States and in the new tropical dependencies, Porto Rico, Cuba and the Philippine Islands. The inner or lower line shows the rates for the U. S. Army in the United States. This line affords a comparison with the line to the left for 1888-1898. The conditions encountered in the tropics make the difference between the outer and inner lines. Lack of regular physical examinations and systematic propaganda against venereal disease characterize this period the same as the first. But the rates, which had steadily mounted until they were almost double the recorded rates of the first decade, were so preposterous that attention was concentrated on them, owing to the nonefficiency produced by these diseases, which, during several years, was about equal to the five diseases next in order of frequency.

Individual spasmodic effort to remedy conditions began. The post surgeons undertook various measures to restrict these diseases. Their efforts were studied by the Surgeon-General's Office, and gradually a systematic campaign was developed, the good results of which appear in the third stage. This was largely assisted, and made possible, in fact, by the discoveries of science—which were promptly utilized.

From 1909 to 1911, the principle of preventive medicine began to be applied extensively. Metchnikoff's experiments relative to the prophylaxis of syphilis subsequent to Schaudinn's discovery had been published. They bore fruit rapidly in the Army, which was affected with such a high venereal rate, and various experimenters in the Army, prominent among them Colonel Mans and Colonel Howard, obtained notable results in lowering the veneral rate by devising satisfactory prophylactic measures.

In the early part of the third stage, the introduction of the Wassermann test and vaccine in the treatment of gonorrheal arthritis is an outstanding feature. The Wassermann test tended to give an increase in the ratios owing to the more accurate means of diagnosis afforded. This system of recording cases was still more marked in 1912, when fortnightly physical inspection was ordered. When carefully done, this permits the discovery of practically all cases of venereal disease except some cases of syphilis. The latter cases, if the patients ever go to the hospital, are now pretty surely found by the use of the Wassermann test, which is ordinarily employed in all obscure or doubtful cases.

Could these methods, fortnightly examinations and the Wassermann test, have been applied in the first stage, from 1888 to 1898, the rate would have been much higher, possibly as much as 110 or more admissions per thousand; for the rates in that period indicate practically only those men who were unable to perform duty and only for that reason appeared on the sick report. At the present time every case appears in the rates whether the man is performing duty or not.

The results of spasmodic and uncentralized efforts to reduce venereal disease appeared in 1911. The effect of centralized and official efforts were apparent in 1912, when the rate was shown to have fallen for the entire Army nearly forty points in two years. Inspection, prophylaxis, and loss of pay for disease not in line of duty are the prominent features. Men and officers who wilfully become incapacitated through ill health are subjected to loss of pay. The wise congressional action which permitted this step certainly should be retained. Its effect has been most powerful and far-reaching and tends to restrain the soldier from dissipation. As long as he cannot perform his duty, he certainly is not entitled to pay when he has wilfully disregarded orders and failed to take advantage of protective measures that would save him from ill health and the goverment from the loss of his services.

The line on this chart for the years from 1910 to 1913 is an outward and visible sign of some of the most creditable work ever accomplished by the Medical Department of the Army. It is also an example of the practical value of applied science. That this improvement was naturally assisted by the cessation of campaigns of any size in the tropics is true, just as, conversely, the concentration of the Army in the United States on the southern border and the dispatch of a part of it to Vera Cruz gave a higher rate in 1914. This, however, was probably aided by one of those reactions so frequently seen in all propagandas.

Now as to our new Army and the future: Higher rates will probably prevail for some time, but hope is backed by knowledge that we have the means, if we can apply them, of controlling this great producer of nonefficiency in armies. The education of the new medical officers is the first condition to success, the education of the line officers as to the supreme importance of the antivenereal campaign is the second, and the education of the enlisted men as to the necessity of prophylaxis after exposure is the third.

This is a practical question and no longer a theory that confronts the new Army. Its efficiency, its very numbers, are dependent on its health. The greatest enemy to its health is venereal disease. What will the answer be to the challenge that it is to meet within the next few months?

A continuation of the orders and methods successful in the Army from 1908 to date will make a successful answer to that challenge of disease. But no misleading and unpractical fanatics must be permitted to have a hand in this question of national efficiency any more than they shall be permitted to dictate as to the manner of making our gunpowder.

The gonococci have probably quite as ancient and respectable a lineage in biology as the pneumococci. The same relentless scientific measures that are used in the one case must be applied in the other, and no false sentiment must be allowed to interfere in the efficiency of their application. Prophylaxis has shown its great and proved value. As long as the instinct of procreation is as omnipresent and as powerful in nature as it is, it must enter into our problem.

Let those who regard veneral disease as a divine punishment recall that smallpox and other diseases have been at various times, and are even today by some regarded as acts of God. If fanatics must interfere in this beneficial work of reducing venereal disease, let them concentrate on an effort to remove the sexual appetite rather than insist on spreading venereal disease, even to the innocent, by abandoning one of the most useful agents in preventing it.

The responsibility devolves on the new medical officers to begin this necessary and beneficial work by thoroughly informing themselves, and then they must carry out the existing orders looking to the prevention of these diseases. All this must begin at home, and must become ingrained in the Army before it can maintain its health in the lands in which it is to justify its existence.

Adastral House, Victoria Embankment, E. C. 4.

THE VENEREAL DISEASES

COMPLICATIONS OF GONORRHEA

FOLLICULITIS

(Continued from page 1171)

NOTE.—This is the fifth article of the series on the management of venereal diseases with special reference to military practice. The first article on "The Diagnosis and Treatment of Syphilis" appeared, Sept. 15, 1917, page 907; the second, on "Chancroid," September 22, page 1004; the third, on "Balanitis Gangrenosa," September 29, page 1080; the fourth, "The Treatment of Gonorrhea," October 6, page 1168. The final article, including a program for the control of the venereal diseases and instructions to those having syphilis or gonorrhea, will appear next week. The articles have been prepared under the direction of the Surgeon-General by the Advisory Committee on Venereal Diseases, Dr. William Allen Pusey, Chicago, chairman; Dr. Francis R. Hagner, Washington, D. C.; Dr. Grover W. Wende, Buffalo; Dr. Sigmund Pollitzer, New York, and Dr. Henry H. Morton, Brooklyn, with Lieut.-Col. F. F. Russell in charge of infectious diseases. The series is published with the permission of the Surgeon-General. The articles are now being prepared in the form of a pocket manual, with flexible cloth cover. The book will be available shortly, price 25 cents.—Ed.

Suppuration of one of the urethral follicles with abscess formation occasionally occurs in gonorrhea. If it does not open into the urethra by the time fluctuation occurs, it should be incised. It is important to incise from within the urethra through a urethroscope if the abscess is connected with the urethra. Otherwise a urinary fistula may result.

COWPERITIS

This condition should be treated by incision from without.

GLANDULAR URETHRITIS

Many intractable cases of gonorrhea lasting for years in spite of constant treatment are caused by a chronic inflammation of Morgagni's crypts. Such cases show few symptoms. There may be merely a morning drop of moisture at the meatus. But they are characterized by exacerbations of the discharge after slight provocation, with a free discharge of pus containing gonococci, which leads the patient to believe that he has acquired a fresh infection. Urethroscopic examination shows the mouths of a few of the crypts to be open and pouting, with red and slightly elevated edges. In other cases the mouths of the crypts are occluded by a growth of epithelium. When the crypts are affected the gonococci may remain in them for years and the case remains infectious.

These cases should be treated by dilatations with a full sized sound followed by irrigations. When the mouths of the glands are occluded by the growth of epithelium, dilatation of the urethra opens them and forces out the purulent secretion. The irrigating fluid enters the cavities and acts on the chronic inflammatory processes within the glands. In that form of inflammation in which the mouths of the glands are held open and the entire crypt is stiffened and inelastic from the periglandular infiltration, dilatations cause the absorption of the infiltrate around the glands and promote a return to normal conditions.

When after sufficient treatment by dilatations and irrigations, it is found by urethroscopic examinations that a few glands still remain chronically inflamed and suppurating—conditions which supply foci of infection—these should be destroyed. This can be accomplished by bringing them into view with the urethroscope, and introducing a galvanocaustic needle. The cauterization must be very superficial and rapid; otherwise there will be danger of stricture formation. Three or four crypts may be destroyed at a sitting. It is possible by destroying the glands harboring the gonococci to cure in this way a chronic gonorrhea of years' standing which has resisted all the usual forms of treatment.

CHORDEE

The patient subject to chordee should empty his bladder just before going to bed; should sleep in a cool place, lightly covered; and, to avoid sleeping on his back, should tie a towel around his waist with a knot at the back. Before going to bed the penis should be given a prolonged immersion in hot water. When the patient wakes with chordee, he should get out of bed and immerse penis and testicles in cold or hot water, and before going back to bed should empty the bladder. He should be warned of the danger of "breaking" a chordee. In severe cases sedatives are necessary, potassium bromid, 2.0 gm., or camphor monobromate 0.3, gm., in the afternoon and before going to bed, are useful; in extreme cases a morphin suppository may be necessary.

EPIDIDYMITIS

Immediately on the development of epididymitis all injections or instrumentation of the urethra must be stopped, the patient be confined to bed and put on a light diet. The testicles should be elevated by a bandage going under them and over the thighs, and hot applications should be made. Hot sitz baths for half an hour three times daily are soothing and hasten recovery. If the symptoms are severe, epididymotomy may be performed. This immediately relieves pain and hastens recovery.

In a few days the acute stage passes. The urethral discharge is then likely to recur, but local treatment of the urethra must be resumed only after a considerable period of rest and with the greatest caution. A suspensory bandage should be worn until the patient is entirely well. There is in these cases a chronic inflammatory exudate in the epididymis, which in time often disappears. Massage of it may hasten its absorption.

PROSTATITIS

Acute Prostatitis.—The indications are (1) to lessen the severity of the posterior urethritis; (2) to prevent suppuration of the prostate; (3) if pus forms, to evacuate it promptly by incision.

The patient should be put to bed, sandalwood oil administered, and, if necessary, the pain and tenesmus controlled by opium suppositories. Locally either an ice-bag or hot poultices are applied to the perineum, a safe guide for the choice between hot and cold applications being the amount of comfort which is given to the patient. Hot sitz-baths of from one-half hour to an hour's duration two or three times daily are always indicated. Irrigation of the rectum with hot normal saline solution for half an hour at a time may be used instead. A rectal prostatic irrigator or in its absence a return flow catheter is introduced into the rectum, and a continuous flow of normal saline solution, as hot as can be borne, is passed through it.

If retention of urine should occur, it may be necessary to introduce a catheter, but this should be done only when absolutely necessary. Before catheterizing, the urethra should be well irrigated to free it from pus. One c.c. of 2 per cent. cocain solution may be injected into the urethra to relieve pain and facilitate catheterization.

Prostatic Abscess.—When a very limited area of suppuration of the prostate is present, involving perhaps two or three of the prostatic tubules, the temperature is only slightly elevated, and the local symptoms are not marked. After two or three days the temperature becomes normal and the tenesmus and frequent urination disappear. In such cases an incision into the prostate is not required, for the minute abscess generally ruptures into the urethra and the sinus fills in by granulation.

If, on the contrary, the symptoms do not improve within the first week, but the fever continues, the local symptoms grow worse, and rectal examination shows an increase in the size of the inflamed prostate, it is evidence that an abscess is forming. This serves as an urgent indication to evacuate the pus; for if the pus is allowed to break through the capsule of the prostate, it will burrow through the tissues and may cause urinary infiltration and pyemia, or, at least, a fistula which will not heal without operation. In these cases immediate surgical measures are indicated.

Chronic Prostatitis.—In almost every case of chronic gonorrheal urethritis the prostate is found to be involved. Aside from its frequency, chronic prostatitis is perhaps the most important complication of gonorrhea; for the reason that the gonococcus, with all its infectious qualities unimpaired, may be retained for years in the diseased tubular glands of the prostate without its presence being suspected. Probably most of the cases in which wives are infected with gonorrhea by their husbands come from uncured prostatitis. Chronic prostatitis is also important on account of the profound disturbance of the nervous system and the impairment of the sexual function, which it occasionally produces.

Chronic prostatitis frequently originates in an attack of acute prostatitis, or it may be the result of a slow insidious extension through the prostatic ducts of an inflammation from the posterior urethra.

It is important in the treatment of chronic prostatitis to secure the confidence of the patient and encourage him by explaining that his condition is one which can be cured; that he is not impotent or likely to become so, and that his nervous disturbances are due to a purely local condition which is not dangerous. At the same time he should be informed that the treatment calls for great patience on the part of both physician and patient, and may extend over several months.

The first indication is to improve the general condition of the patient by a proper regimen. Constipation is generally a prominent symptom, which is best treated with saline cathartics, because they have some effect in relieving pelvic congestion. All sorts of erotic excitement should be interdicted on account of their effect in inducing congestion of the prostate. Coitus should not be permitted, both because of its ill effect on the diseased prostate and because of the certainty of spreading the infection.

The most useful local measure is the emptying of the prostatic tubules of their retained and thickened contents by rectal massage, practiced two or three times weekly. In this procedure both lobes should be massaged from above downward and the manipulation should not be very vigorous, the object being to force out the prostatic contents by moderate pressure. Massage of the prostate is not well borne by all patients; and, if it produces irritating symptoms, it should not be persisted in. In order to lessen the danger of epididymitis from prostatic massage, it is advisable to irrigate the urethra and fill the bladder before massage. For this purpose, if gonococci are present, a solution of silver albuminate, 1 : 1,000, should be used; if they are absent, solutions of silver albuminate, 1 : 4,000, or oxycyanid of mercury, 1 : 4,000, may be employed.

Treatment by massage may be persisted in until improvement in prostatic symptoms ceases. At this point it is advisable to stop treatment for a month. If after this intermission the remaining evidences of prostatitis have not disappeared, a course of massage may be repeated.

Most cases of prostatitis suffer from chronic posterior urethritis, and it is important not to overlook this condition. If there is a great deal of catarrhal inflammation, with much pus formation, irrigations are advisable. But, if the suppuration is only slight, instillations into the posterior urethra are indicated. In most cases 1 per cent. or 2 per cent. of silver nitrate solution may be used, but in old and obstinate cases stronger solutions are called for and the strength may be gradually increased to 5 per cent. Strong solutions can be better applied through the urethroscope.

In nearly every case of chronic prostatitis the verumontanum is diseased and requires particular attention. The best method of treating it is to apply a strong solution of silver nitrate — 20 per cent. — directly on it through the urethroscope. Some reaction follows this application, the discharge increases, and the patient has frequent urinations, often followed by bleeding. After eight or ten days it is safe to make another application. Tincture of iodin may be used if the silver nitrate causes too much pain. After half a dozen strong applications, the verumontanum will probably return to normal; but if chronic posterior urethritis with prostatitis has existed for a long time, a submucous infiltration will have occurred, which also demands treatment by posterior dilatation.

SEMINAL VESICULITIS

Acute Seminal Vesiculitis.—The general treatment of acute vesiculitis is the same as that for acute prostatitis, with which it is usually associated. Injections into the anterior urethra, of course, are contraindicated; but above all things, any attempt at massaging or stripping the vesicles should be avoided.

Chronic Seminal Vesiculitis.—Chronic vesiculitis may originate from an acute attack of vesiculitis which does not undergo resolution; but as a rule it develops insidiously, as the result of the extension of a chronic inflammatory process which begins in the posterior urethra and extends through the ejaculatory duct. The ejaculatory duct is never occluded by the changes; throughout the whole course of the disease it remains patulous, and sterility does not occur from this cause.

Chronic seminal vesiculitis presents itself in two variations:

1. Atonic vesiculitis, in which there is chiefly an atony of the muscular fibers composing the walls of the vesicle.
2. Inflammatory vesiculitis, in which the walls of the vesicles are thickened and indurated as a result of inflammation, which may be simple, gonorrheal, or tuberculous in origin.

Either form of vesiculitis may exist by itself; but usually there is a combination of atony and inflammation of the vesicular walls.

Treatment.—The treatment consists in stripping or expressing the contents of the vesicles once in five to seven days. Stripping empties the vesicles of their inspissated contents, without forcing the muscular fibers to contract; and, by the relief of distension and the rest thus afforded them, the muscles recover their tone. The inflammatory thickening around the vesicle is absorbed as a result of massage.

Contraindications to stripping are: (*a*) the existence of acute vesiculitis; (*b*) blood in the expressed material, or (*c*) excessive tenderness. With these conditions present, there is always danger of setting up an epididymitis.

In chronic vesiculitis the posterior urethra should not be overlooked, but should receive treatment, with irrigations or instillations or by applications made through the urethroscope as outlined under chronic prostatitis. It is desirable, however, not to apply local treatment to the posterior urethra and massage the vesicles at the same sitting, but rather to allow a couple of days to intervene.

The duration of treatment must be protracted, for it requires from two to twelve months to effect a cure. In obstinate cases characterized by marked sexual neurasthenia or intractable gonorrheal rheumatism, free incision into and drainage of the seminal vesicles may be demanded. This is a procedure requiring expert skill.

GONORREHEAL INFECTIONS OF SYNOVIAL MEMBRANES

The most frequent metastasis of the gonococci is seen in the infection of the synovial membranes (arthritis, teanosynovitis, bursitis), usually developing in the third week of the disease, after involvement of the posterior urethra. Traumatism may be a predisposing cause in this condition.

It is well in this group of cases to call in an orthopedic specialist for the local treatment of the infected joint. But it must not be forgotten that the most important factor in treatment consists in the removal of the foci of infection in the urethra or its adnexa.

The treatment should be carried out along the lines already suggested for the treatment of these lesions. Vaccines are efficacious in some cases, in others operation for drainage of the seminal vesicle or prostate may be indicated; this latter requires special skill in genito-urinary surgery.

GONORRHEAL OPHTHALMIA

EVERY CASE OF ACUTE CONJUNCTIVITIS IN A GONORRHEAL PATIENT IS A CONDITION REQUIRING EXPERT ATTENTION, AND SHOULD BE IMMEDIATELY REFERRED TO AN OPHTHALMOLOGIST.

(To be continued)

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SATURDAY, OCTOBER 13, 1917

HOME-CANNED FOODS AND BOTULISM

The still widespread belief that food poisoning of the sort attributable to bacterial products taken in with the food is associated almost exclusively with animal products seems to demand correction, particularly at present. A warning of the unsuspected danger of poisoning from canned vegetables at a time when the food conservation propaganda has led to the preservation of foods of all kinds in thousands of homes in anticipation of the winter's needs has been uttered by Dickson[1] in a recent issue of The Journal. He asserts, on the basis of an investigation conducted at the Stanford University School of Medicine, that the frequency with which food poisoning is caused by the presence of the toxin of the *Bacillus botulinus* is probably very much greater in this country than has been generally believed.

This kind of food poisoning has most inaptly been termed botulism, in recognition of the assumption that it is due as a rule to the ingestion of infected sausage (*botulus*). The insidiousness of the menace is emphasized by the fact that food in which the offending micro-organism, the *Bacillus botulinus*, which produces the harmful toxin, has grown may not give any indication of being altered in a way that necessarily arouses suspicion. It should be clearly understood that botulism is an intoxication, not an infection.[2] Unlike most bacteria dangerous to man, the *Bacillus botulinus* appears unable to grow in the human body, and its injurious effect is therefore limited to the action of the toxin produced in foods outside the body. Fortunately this toxin, as it is currently stated, is readily destroyed by heat; hence there is a safeguard of the utmost value in serving only after heating all foods in which the danger may lurk.

The investigations of Dickson have now brought to light an unexpected number of known and hitherto unrecorded cases of botulism occurring in the United States. This author has become convinced from his experiences that there have been many more outbreaks which have passed without recognition, and that if it were possible to follow up all cases of food poisoning in which the patients recovered, and all fatal cases in which the death certificates give the cause of death as ptomain poisoning or bulbar paralysis, a very large group of instances would be collected. Home-canned vegetables and fruits have often been the carriers of the danger. Dickson's work emphasizes what has been demonstrated before, namely, that not only can the micro-organism be grown readily in mediums containing vegetable foods, but also that it is a spore-bearing form which is quite resistant to heat. Taken in connection with the fact that *Bacillus botulinus* is an obligative anaerobe so that the conditions which exist in a sealed jar are suited for its growth along with production of the toxin, this explains why improperly sterilized canned products may develop food poisoning. It is unfortunate that the widely distributed directions for the so-called "cold pack" process of canning and preserving have not given more emphasis to the need of very efficient sterilization in the process. Jordan states that, to judge from the recorded outbreaks, domestically prepared vegetables and meats are more likely to give rise to botulism than those prepared commercially on a large scale. The general use of steam under pressure in the large canning factories affords a high degree of protection against the anaerobic bacteria and their resistant spores. Whatever the method of treatment, all canned or preserved food having an unnatural appearance, taste or odor should be rejected. Reheating of all prepared foods immediately before use is an additional safeguard. Foods, such as salads, composed wholly or in part of uncooked materials should not be allowed to stand overnight before being served.

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[1] Dickson, E. C.: Botulism, The Journal A. M. A., Sept. 22, 1917, p. 966.

[2] A good account of botulism is given by E. O. Jordan in Food Poisoning (Chicago, 1917), from which some of the statements above are taken.

THE INHERITANCE OF STATURE

Growth is influenced by conditions that may be described as internal and external, respectively. One of the sets of factors thus concerned is constitutional; the other, environmental in character. Stature is determined by growth, and the question of the degree to which this feature of the individual is controlled by conditions of life rather than by hereditary considerations has been somewhat debated. As a recent writer[1] has pointed out, that there are hereditary factors involved in the differences in height of adults follows from the recognition of racial differences, for true racial characters are hereditary. Moreover, this hereditary nature has been popularly long recognized. Nevertheless, there is a strong tendency with certain persons to ascribe idiosyncrasies in stature almost wholly to peculiarities of conditions of development. The assumption of an inferior food supply as a cause of decreased stature in certain groups of population has often permitted its adherents to forget differences in blood in the unlike groups. The superior stature of the residents of the state of Kentucky has been ascribed to lime in the soil. The real reason, Davenport writes, why the people of Lexington, Ky., run tall is that they have a large proportion of Scotch blood, as they readily admit. One can test this conclusion by going to Scotland County, North Carolina. This is on the coastal plain where there is practically no lime. Here, at places like (Mac) Laurenburg, (Mac) Queensdale and Maxton (Mac's town) a nearly pure Scotch population is found—descendants of the Cape Fear River immigrants—and they are even taller than the people of Lexington. This experience strongly suggests that internal constitutional factors are more important than the ordinary environmental differences.

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[1] Davenport, C. B.: Inheritance of Stature, Genetics, 1917, 2, 313.

The experimental investigations of Osborne and Mendel,[2] among others, have indicated that growth can be suppressed by inadequacies in either the quantity or the quality of the ingested food. But even after the lapse of long periods of suppression of growth, that is, control of growth by external or nutritive agents, resumption of growth may take place if the dietary conditions are rendered favorable and adequate. This represents an extreme situation in some respects; and, as Davenport remarks, overfeeding, however much it may affect weight, has probably little effect on adult stature, though it may hasten growth and thus enable a man to reach precociously his predestined stature. The comparative lack of dependence of growth on quantity of food is shown by the fact that a bantam chick which is fed heavily never develops into anything but a bantam fowl. Admittedly the activities of various endocrine glands have an influence on the continuance and extent of growth. All manner of complicated hypotheses have been framed to account for abnormal growth and variations from the expected on the basis of unusual performances of some gland like the thyroid, pituitary or pineal structures, or the sex glands. But such variations may themselves well be hereditary or racial in character.

The modern study of genetics has made it possible to approach the problem of inheritance of stature in a thoroughly scientific way. Under the direction of Davenport[1] of the Station for Experimental Evolution at Cold Spring Harbor, N. Y., the Eugenics Record Office has undertaken an analysis of the obvious fact that persons differ in height. From this it appears that there is a clear correlation, though not perfect, between the average time of onset of puberty and the average age of slowing up of growth, and it is probable that the former controls the latter. In the case of woman, for example, an examination of the curve of growth brings out the important point that the growth processes, which are fairly progressive up to about 14 years, begin to be damped off after that period. Were the average rate of growth of the female between the ages of 8 and 14 maintained up to the age of 25 years, the average woman at that age would be over 210 cm. or 82½ inches or nearly 7 feet tall. The reason we do not reach such a stature is that our growth is damped off; and the principal damping off occurs as the germ glands ripen. Variations in adult stature may conceivably result from an acceleration or a retardation in this damping off process.

According to the acquired records, very tall men tend to marry a greatly disproportionate number of very tall women (and few or no very short ones); also tall men marry a disproportionate number of very tall women; medium men tend to marry women of the various statures about in their proportion in the whole population. Short men tend to marry short women and few very tall ones. Very short men marry an excess of short and very short women, and relatively few very tall and tall ones. In a word, persons of similar stature tend to marry each other; and extremes are more particular in this respect than those of medium stature. The progeny derived from matings of similars are less variable than those derived from matings of dissimilars. Thus the offspring of two tall parents are less variable in stature than those of two short parents. When both parents are "tall" or "very tall," and of tall stock, practically all the children are tall or very tall. When both parents are "very short" or "short," and of short stock, all children are short or very short. Shortness, according to Davenport, is due to certain positive factors that inhibit growth of the various parts. He regards it as probable that in all forms of dwarfing there are multiple dominant inhibiting factors. In the case of giants, when both parents are tall all of the children are tall; this indicates that the factors for tallness are mostly recessive—probably owing to the absence of inhibitions to prolonged growth.

It is an interesting additional feature of this new study in the heredity of stature that the inheritance of proportional length of the segments of stature is as evident as the inheritance of absolute differences. According to Castle,[3] to a large extent the factors that determine size are general factors affecting all parts of the skeleton simultaneously. Whatever special factors (if any) there are, which are concerned in limiting the size of particular bones, these can play only a subordinate part in determining size. According to Castle, the chief factors are plainly general factors, and control the growth of the body as a whole. Davenport's study seems to show, however, that general factors control growth only to a degree that may be estimated as less than half. On the other hand, special factors are present that control, independently, the growth of the various elements that go to make up stature. And the graduated nature of the variations of stature must be largely due to the number of these independently varying units.

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[2] Osborne, T. B., and Mendel, L. B.: The Suppression of Growth and the Capacity to Grow, Jour. Biol. Chem., 1914, 18, 95.

[3] Castle, W. E., and Phillips, J. C.: Piebald Rats and Selection, Pub. 195, Carnegie Institution of Washington, p. 51.

RECENT CONTRIBUTIONS OF CLINICAL CALORIMETRY

In the hands of American investigators, clinical calorimetry has yielded notable contributions. The Nutrition Laboratory of the Carnegie Institution, under the direction of F. G. Benedict at Boston, and the Russell Sage Institute of Pathology, under the guidance of Graham Lusk, have served as training stations. These endowed laboratories not only have enriched science with fundamental facts, but also have served as centers from which have gone young workers competent to appreciate what human calorimetry really means and to spread an interest in what it can contribute to medical progress.

The basal metabolism of normal man has been well established by the large number of carefully conducted measurements made in this country. It is not proportional to the body weight of the individual, but rather to the superficial area, as Rubner enunciated long ago. The universality of this conception is shown by the outcome of a large number of determinations showing that the unit of surface area eliminates the same amount of heat in the normal adult within 10 per cent. of a determined average. For adult men approximately 40 calories per square meter of body surface per hour may be accepted as approximating closely the normal basal heat production when the individual is resting and before administration of food in the morning. A thin person may produce 50 per cent. more heat per kilogram of body substance than an obese one; yet when the heat output per square meter of surface is calculated there will be little difference. The nitrogen content of animals has been shown by Moulton[1] to be almost exactly proportional to the surface area of the subject. Lusk[2] points out that if the nitrogen content is a measure of protoplasmic tissue, these experiments afford a striking confirmation of the doctrine of Voit that the heat production is proportional to the mass of living cells. In any event, thanks to these researches, the validity of the use of properly calculated heat output per unit of surface, that is, of basal metabolism, as a criterion of an altered metabolism in patients has now been established.[2]

Aub and Du Bois[3] have properly pointed out that in order to establish more fully the law that the total body metabolism is proportional to the surface area, it is important to establish the law not only for persons of normal size and shape, but also for those who are deformed. If the body surface is a tone index of the metabolism, Aub and Du Bois add, and if the body surface is accurately measured, then dwarfs or men with their legs cut off would show proportionately the same basal metabolism per square meter of surface as do normally shaped persons. This has been found to be the case in the subjects with apparently normal endocrine systems who have been examined in the Sage calorimeter, so that the law of surface area holds good for men of unusual body shape. However, dwarfs with involvement of the ductless glands and symptoms of cretinism showed a marked reduction in metabolism below the average found in normal cases, as has been reported by other authorities.

Age is not without influence on metabolism. Boys just before puberty have a high chemical exchange, so that their basal requirement may be as much as 25 per cent. above that of the adult. Men have a higher metabolism than women. With advancing age, however, there is no longer the same intensity of oxidation as in the prime of life. Aub and Du Bois[4] have studied in the calorimeter a group of six men between the ages of 77 and 83. Their average basal heat production was 35.1 calories per square meter per hour, which is 12 per cent. below the average for men between the ages of 20 and 50.

The most recent series of contributions in clinical calorimetry with the Sage calorimeter[5] present interesting additions to our knowledge of metabolism in disease. Edematous nephritics were found by Aub and Du Bois to manifest a diminution of the body metabolism, according both to body weight and to surface area. In two patients with great edema the heat production was 27 and 40 per cent. below the normal average. Such nephritics kept on low diets show a reduction in food requirement similar to that usually found in prolonged undernutrition. This is in contrast with the experience on patients suffering from other types of nephritis for whom the basal metabolism and the food requirement seems to be normal. Cardiorenal disease associated with dyspnea may manifest a distinct rise in the heat production.[6] It is interesting to note further that no relationship could be established between the level of metabolism and the degree of acidosis or the eliminative power of the kidney. Aub and Du Bois mention that the normal respiratory quotients found in patients with low carbon dioxid combining capacity of the blood plasma prove that nephritic acidosis is not caused by difficulty in oxidizing carbohydrates.

An illustration of the value of calorimetry in elucidating the action of drugs is afforded by the study of Means, Aub and Du Bois[7] on the behavior of caffein. They remark that as one looks over the enormous literature on the various actions of caffein, one gains the impression that the numerous contradictory statements are not necessarily due entirely to faulty observation, but possibly because the action of caffein on any given function is extremely variable, often diametrically opposite, in different individuals, and in the same individual with varying doses. However, after taking large doses of the alkaloid (from 8 to 10 grains, or 8.6 mg. per kilogram of body weight), normal individuals exhibited an increase in the basal metabolism of from 7 to 23 per cent. without significant change in pulse rate, body temperature, or the proportions of the various foodstuffs metabolized. This unique effect of large doses of caffein seems remarkable; but, as Lusk[3] has pointed out, it is slight compared with the stimulation of metabolism by muscular exercise. It is great only by comparison with "the immutability of the level of the normal basal metabolism, a state in which the heat production is subservient to the requirement of energy on the part of the cells for the maintenance of life, the requirement being so regulated and adjusted that the heat loss per square meter of surface is approximately 40 calories per hour, while the body temperature is maintained at a constant level."

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[1] Moulton, C. R.: Jour. Biol. Chem., 1916, 24, 299.

[2] Lusk, Graham: The Elements of the Science of Nutrition, Philadelphia, 1917.

[3] Aub, J. C., and Du Bois, E. F.: Clinical Calorimetry, Twenty-First Paper, The Basal Metabolism of Dwarfs and Legless Men with Observations on the Specific Dynamic Action of Protein, Arch. Int. Med., May, 1917, p. 840.

[4] Aub, J. C., and Du Bois, E. F.: Clinical Calorimetry, Nineteenth Paper, The Basal Metabolism of Old Men, Arch. Int. Med., May, 1917, p. 823.

[5] Series of papers on clinical calorimetry in the Archives of Internal Medicine, May, 1917, Part 2.

[6] Peabody, F. W.; Meyer, A. L., and Du Bois, E. F.: Arch. Int. Med., June, 1916, p. 980.

[7] Means, J. H.; Aub, J. C., and Du Bois, E. F.: Clinical Calorimetry, Twentieth Paper, The Effect of Caffein on the Heat Production, Arch. Int. Med., May, 1917, p. 832.

BEER AS A SOURCE OF PROTEIN

Malted liquors are defined as beverages made by the alcoholic fermentation of an infusion of barley malt and hops, with or without unmalted grains. Beer, which belongs in this category, ordinarily contains from 3.5 to 4 per cent. of alcohol. The idea long held by a large portion of the public that "alcohol increases the power of endurance, and gives greater energy and ability to work longer" has given way to a more accurate appreciation of the real rôle of this substance in the body. Despite the fact that alcohol can be burned in the human organism, the most enthusiastic supporters of its use, if there still be such, do not defend it on the basis of superior nutrient virtues. The pharmacologists almost without exception rank alcohol as a depressant rather than a stimulant in the true sense; and the therapeutist who cares to advise the employment of alcohol does so from the standpoint of its pharmacodynamic performance rather than because of any superior food value in the product.

Beer, however, has made claim to recognition as a food, in contrast with the distilled liquors that contain essentially only water and alcohol, on the basis of the cereal constituents which are still contained in it. Hence the statement that "beer is liquid bread." In addition to alcohol, beer does, in fact contain sugars and other soluble carbohydrates, along with a small amount of nitrogenous compounds that are frequently expressed as protein. The customary method of arriving at an estimate of this fraction of beer consists in determining the nitrogen content and calculating it as protein, after multiplication with the familiar factor N × 6.25. This procedure is now well recognized by food analysts to be fallacious so far as it assumes that all compounds containing nitrogen, in food substances, are actually protein in nature. On this basis such substances as amins, ammonium salts, alkaloids, etc., would be counted as protein.

The uncertainty regarding the real food value, if any, of the nitrogenous compounds of beer is emphasized in a recent report of the Committee of the Royal Society on the Food Supply of the United Kingdom. which has assumed, without any conclusive evidence, that something between 50 and 100 per cent. of the nitrogen is in the form of protein or amino-acids which are utilizable in the body. In the Department of Physiology of Glasgow University, Sharpe[1] has recently undertaken to throw further light on the controverted question of the nature of the nitrogenous compounds in beer. He reviews the fate of the proteins of barley during the brewing process wherein, as a result of the malting, part of the protein in the grain is acted on by proteolytic enzymes which break it down into simpler substances. These, along with a little soluble protein, pass into solution during the mashing; but the greater part is left in the brewers' grain. During the processes of boiling, hopping and subsequent cooling of the wort, some of this protein becomes precipitated. The amount of nitrogen thus finally left in solution is termed by the brewer "permanently soluble nitrogen." By the action of the yeast during fermentation, a further quantity of soluble nitrogen is removed by these organisms' using a certain proportion as food. A further amount of protein is removed after the beer is made, and this process is carried out to insure that the beer may remain "bright."

Beers of various types contain solid matter ranging from less than 4 per cent. in the "light" varieties to over 6 per cent. in other kinds. Of this, about one half is carbohydrate, essentially dextrin in nature. This leaves 2 or 3 per cent. of the dissolved substance, some of which is nitrogenous, to be accounted for. That the protein content of the beer or ale will not be appreciable when the beverage reaches the consumer is shown by the failure of most of the protein tests to give a reaction with the product. According to Sharpe's new analyses, the protein nitrogen of the beers analyzed varies from 13.2 to 37.0 per cent. of the total nitrogen, that is, the protein content of beer varies from 0.038 to 0.185 per cent. The nitrogen as amino-acid varies from 25 to 46 per cent. of the total nitrogen, that is, the amino-acid nitrogen of beer varies from 0.014 to 0.040 per cent. There is a varying proportion of nitrogen combined as purin compounds which in some cases exceeds that combined as amino-acid nitrogen. It varies from 25.8 to 52.4 per cent. of the total nitrogen, or from 0.01 to 0.39 per cent. of the beer itself. The undetermined nitrogen of these beers varies from 2.4 to 6.3 per cent. of the total nitrogen, that is, the percentage of the beer itself varies from 0.001 to 0.005.

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[1] Sharpe, J. S.: The Distribution of Nitrogen in Beer, Biochem. Jour., 1917, 11, 101.

Bearing in mind the limited quantities of beer that can be taken per day with any approach to impunity, it will be seen that the few grams of hypothetic protein thus offered have no significance whatever as a defense for the use of the beverage. One might as well exploit the protein in ginger ale or fruit juices. A writer[2] on dietetics has thus presented the possible use of the malt liquors:

> Beer, ale, and stout, by virtue of their taste, aromatic bitters and tonics, give a relish to food, increase appetite, and promote the flow of saliva. To this extent they assist digestion. They are useful to convalescents, those enfeebled by chronic diseases, and the aged. They are of some value to those whose occupation is sedentary, whose stomach has lost tone by overwork, rush, and worry, and to sufferers from neuralgia and insomnia. The limit should be 1 pint a day. They are contraindicated in neurotic conditions, diabetes, gout, rheumatism, obesity, and genito-urinary diseases.

We leave it to our readers to steer a safe course, if there is any, between the indications and the contraindications for beer. In any event, any claim for its protein contribution to the diet no longer needs serious consideration. The dairy cattle are more fortunate in having the protein concentrate of the brewers' grains available for their ration.

Current Comment

THE INCIDENCE OF TUBERCULOSIS AMONG SOLDIERS

When Major Eduard Rist of the Medical Corps of the French Army, assigned by the French government to the Surgeon-General's Office, announced at the meeting of the American Association of Military Surgeons held at Fort Benjamin Harrison this week that the facts concerning tuberculosis in France, and especially in the French army, do not agree with the exaggerated statements published in this country, he settled conclusively a point which has agitated civilian and medical tuberculosis authorities in this country since the beginning of the war. Major Rist stated that out of 1,000 men sent back to a base hospital as suffering with pulmonary tuberculosis, all but 193 were returned to the front with the diagnosis not confirmed. He said also that the chief cause of the too numerous diagnoses of tuberculosis was the fact that civilian physicians called to army life are too much inclined to make the diagnosis of tuberculosis on very slight evidence. In making a differential diagnosis the mistakes were not made through the difficulty of differentiating pulmonary tuberculosis from unusual maladies, such as abscess of the lung, or pulmonary tumor, but far more frequently through the confusion of the diagnosis with minor complaints such as infections in the upper air passages, acute rhinitis, pharyngitis and bronchial inflammation. France, in need of every soldier, found it necessary to comb with a fine comb in order that no man be eliminated from the army through a mistaken diagnosis of this sort. The United States, with a supply of men far above the number that can be successfully trained and transported for military service, need not, perhaps, be so careful in eliminating men from military service because of the suspicion of this disease. In any event, making a diagnosis of tuberculosis and eliminating a man from military service for this cause wrongfully is not doing justice either to him or to the nation.

ISOPATHY

The early stages of homeopathy are associated with certain apparently minor developments of no little interest from the historical point of view. Not wholly satisfied with the doctrine expressed by "similia similibus," Hering, Lux and others urged the principle of "aequalia aequalibus curantur"—the like cures the like. The form of treatment indicated in this slogan was regarded not as a new departure, but rather as the revival of methods found in folk medicine, and mentioned by early writers and even by church fathers, especially the holy Bishop Ivo of Chartres, whose remarkable statement on the analogy between Christ and the skilled physicians, made in 1092, runs as follows:[1]

> It is, namely, the habit of people skilled in medicine to cure at one time by opposites, and at another by likes, the illnesses which they undertake to cure. This is what our Lord Jesus Christ did, making us rich by his poverty, exalting us by his humility, healing us by his infirmity, giving us life by his death. In the same way, in medical theory, dry is set against moist, moist against dry, hot against cold: and contraries of lesser strength are overcome by the bringing in of contraries of greater strength. In similar fashion like is apposed to like, when the length or breadth of the poultice is measured by the amount of the wound or swelling. So scorpions' flesh boiled in oil heals the stings of scorpions; so a remedy made from the flesh of a serpent operates against the bite of a serpent, and, taken in a drink, overcomes poisoned drinks. In the same likeness our Physician healed by his own death in the flesh the death of our flesh which came from the serpent. . . . But with this remedy made up of the like was mixed also the remedy made of the opposite. For here obedience healed what disobedience had there corrupted; and what had there been contaminated by the pleasure of appetite is here made right again by the suffering upon the cross.

We are told[1] that the isopathic principle of treatment was carried out by its adherents in the most exact manner possible. For smallpox, matter taken from the pustules—"variolin"—was given internally; itch was treated internally with "psorin" or scaly material from parts affected with scabies; sweating of the feet with foot-sweat; phthisis with "phthisin"; caries of the teeth with "odontonekrosin"; diseases of the liver with "hepatin"; diseases of the spleen with "lienin"; diarrhea with fecal matter; teniasis with tapeworm joints; gonorrhea with gonorrheal pus—a treatment for gonorrhea recently urged again as a new advance by a homeopathic physician in New York. In the end it even was demanded that the remedy must come from the patient's own body—

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[2] Tibbles, William: Dietetics or Food in Health and Disease, Philadelphia, 1914, p. 257.

[1] Quoted by Faye, Nord. med. Ark., 1880, **20**.

auto-isopathy — and autocankrin was given in cancer, auto-odontonekrosin for dental fistula, etc. The reference in the remarkable statement by Bishop Ivo to the use of the flesh of scorpions and serpents in stings and bites by these animals reminds us again that in the early ways of treating the conditions resulting from the bites of poisonous animals we see the first foreshadowings of the present conceptions of immunity and the treatment based thereon. Probably what is usually called crude empiricism has had more to do with the evolution of those conceptions and methods of treatment, preventive and curative, than ordinarily recognized.

"SCIENCE"

> ". . . the only difference between the hypochondriac and the consumptive is, that the one suffers from what the world would term a purely mental disease, imagining himself unwell, whilst the other has, unconsciously, thought himself into a condition of one of the many phases of disease."

So, editorially, speaks the *Christian Science Monitor* of recent date. This also, we opine, is the only difference between the soldier suffering from "shell shock" and the one who has had a leg blown off. For the Christian Scientist, germs do not exist; the tubercle bacillus is but a creature of the medical man's disordered fancy. The unreality of a germ as distinguished from the materiality, let us say, of the two dollar bill which a Christian Science practitioner exacts for an "absent treatment" is based, presumably, on the fact that one can be seen only through a microscope while the other is visible to the naked eye.

MILK PRODUCTION

At a time when much interest centers in the preservation of our dairy cattle from the temptation of disposing of them profitably as sources of beef, it is important to count the cost which the rearing of milch cows to their highest productivity really entails. According to reports of German experience, since the war began about 10 per cent. of the dairy cattle have been slaughtered each year. At best there are probably not more than 20,000,000 productive dairy animals in this country at present. Next in importance to the integrity of the bread ration in the household is the maintenance of the normal milk supply, as already pointed out in The Journal.[1] The number of milch cows is only one measurement of milk production; the productivity of the individual cow is the other. At the present time the average milch cow supplies 4.5 individuals in this country. Pearl and Patterson[2] have pointed out the fact well known among dairymen and breeders that, other conditions being the same, a cow will produce more in a given length of time during her second lactation period than for the same time during her first period; she will produce more her third lactation period than her second, and so on until she reaches mature form, or the age for maximum production. She remains in this mature form for a few years; then each succeeding lactation period decreases in the rate of milk flow. Opinions differ somewhat as to the average age at which a cow reaches mature form, and as to the rate of increase with which she approaches that form. The general belief is that mature form is reached by the fifth year. An investigation of the records of American Jersey cattle—a typical milk-producing breed—has verified the fact that milk production changes with age in a definite manner. Maximum production is reached at approximately the age of 8 years and 7 months. The long time, measured in years, required to procure the highest efficiency should serve as an added warning against permitting the unwise slaughter of such slowly developing potentialities. For, after all, beef is not the sole wholesome food available.

DRINKING FOUNTAINS—SANITARY AND INSANITARY

Last year we referred to the unexpected menace to health which the modern type of so-called sanitary drinking fountain may harbor.[1] That this is not merely an academic assumption, but may become a dangerous actuality, was borne out by the occurrence of a streptococcal infection that was traced directly to a drinking fountain.[2] Although nozzle fountains are being installed in large numbers throughout the country, there is little evidence, if one may judge from the forms everywhere displayed, that the defects of the types now furnished are either corrected or recognized. In the earlier investigations it was pointed out that the vertical jet of water permits micro-organisms derived from the mouth of the drinker to dance in the stream like a ball in the jet of a fountain, so that the bacteria may remain undisplaced for unexpectedly long periods. Dr. Whittaker[3] of the Minnesota State Board of Health has since completed an investigation of seventy-seven drinking fountains representing fifteen commercially obtainable types. About two thirds of these were of the continuous-flow type and one third of the intermittent type operated by the consumer. The nozzles on all discharged vertically, and the height of the water jet above the parts that could be touched by the lips of the drinker was less than one inch in nearly half of the fountains. All were subject to contamination by the consumer, either directly by the lips or by water falling back from the lips on the jet or surrounding parts. Certain of the types have closed cup-shaped receptacles around the point of discharge which were demonstrated to retain added coloring mater — and therefore bacteria also — for long periods of time. The crucial test of danger comes in the bacteriologic examinations conducted on these fountains. Eighty per cent. of those in use at the University of Minnesota were found infected with streptococci; and the water from 11 per cent. contained organisms of this type when they were not found present in the water supplied to the fountains. As Whittaker says, these results indicate clearly that drinking fountains may be a factor in the transmission of communicable diseases. There is nothing discouraging about this, however; for it has already been demonstrated that the existing conditions can be remedied by the introduction of fountain nozzles that are safe from a sanitary standpoint and are economical to construct and operate. The change of construction merely involves the substitution of an inclined nozzle for the vertical jet, and the protection of the point of discharge from the approach of the consumer.

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[1] The Effect of War on Dietary Prejudices, editorial, The Journal A. M. A., June 23, 1917, p. 1912; Another Word About Milk, July 28, 1917, p. 289.

[2] Pearl, R., and Patterson, S. W.: The Change of Milk Flow with Age, as Determined from Seven Day Records of Jersey Cows, Bull. 262, Maine Agr. Expt. Station, July, 1917.

[1] Possible Dangers of the Bubble Fountain, editorial The Journal A. M. A., Nov. 11, 1916, p. 1451.

[2] Pettibone, D. F.; Bogart, F. P., and Clark, P. F.: Jour. Bacteriol., 1916, **1**, 471.

[3] Whittaker, H. A.: Drinking Fountains: Investigation of Fountains at the University of Minnesota, Pub. Health Rep., May 11, 1917, p. 691.

THE MEDICAL EXAMINATION OF THE NATIONAL ARMY

The announcement has just been made from Provost-Marshal General Crowder's office in Washington that in examining the remainder of the 10,000,000 men subject to draft and service in the National Army, information will be sought first as to the liability of each man for service, and the physical examination will follow only when the man is not exempt for some cause under the law. This is so obviously the correct order of the steps in the selection of men for service that it is surprising that this method was not adopted in the calling of the first 700,000 men.

THE IMPORTANCE OF MOUTH SPRAY INFECTION

Under conditions that involve the close association of large numbers of persons, as in the great military encampments, certain modes of infection acquire a kind of exaggerated importance. The transmission of disease germs in ways that are rare in normal everyday life occurs with greater frequency and has more far-reaching consequences. Exposure to inhalation of mouth spray is one of the most serious dangers. The small droplets discharged from the mouth or nose in sneezing, coughing, laughing and loud talking float about in the air for some time, and may be carried by currents of air to a considerable distance. There is reason to believe from the experiments of Köhlisch with tubercle bacilli that the moist droplets which often contain a little mucus are more likely than dry dust to produce infection. Köhlisch, for instance, found in animal experiments that fifty tubercle bacilli inhaled as bacterial spray produced over twenty lung nodules, while the inhalation of over 2,000 in the form of dry dust had a very irregular action, and in some cases evoked no pathologic change. It is a somewhat general belief that, in human tuberculosis, infectious droplets are a more frequent source of infection than dried sputum. In numerous other infections that enter by way of the respiratory tract, the inhalation of mouth spray coming from an infected person or healthy carrier seems the typical mode of infection. This is true in diseases like pneumonia, influenza and whooping-cough, and probably in measles. Epidemic meningitis is probably also most commonly spread in this way. The importance of mouth spray in surgical wound infection is well known. In camp life, infection of this sort is notably difficult to control. The rapidity with which measles and epidemic meningitis are likely to spread among new recruits is typical. Possibly increase of tuberculosis among troops is partly due to the increased opportunity for infection as well as to the influence of predisposing factors. It is doubtful whether hygienic instruction in the use of the handkerchief for smothering mouth spray from the particularly mischievous sneezes and coughs would be immediately effective, although every hygienically trained individual is a help toward the desired end. General camp measures that promote resistance to infection are always of value, probably especially so in meningitis, less of course in measles. If it were possible in cases of "cold" and the like in the incipient stage to make examinations, and when necessary, to isolate the patients, the spread of mouth spray infection might be materially checked. This measure is worthy of consideration in all conditions in which there is any definite and serious respiratory tract epidemic. Known contacts may be kept under special surveillance and the cooperation of officers enlisted to detect early signs of infection. There is no single and universally applicable method for preventing the transference of germs from one soldier's respiratory tract to another's, but all reasonable and persistent attempts to prevent mouth spray infection are worth making. A person with the developed rash of measles or the skin-peeling of scarlet fever is not allowed to roam unchecked, if his condition is known; but little or no restraint is yet put either by health authorities or by public opinion on the wanderings of the much more dangerous person who is sneezing and coughing myriads of germs into the atmosphere.

THE BELGIAN AND FRENCH PHYSICIANS' FUND

We recently attempted to emphasize the appeal for funds for physicians of Belgium and Northern France who need aid in various ways. Dr. Keen acknowledges in this issue of The Journal the contributions to this fund thus far received. There are only sixteen contributors in this first list; there ought to be sixteen hundred, and there would be—and many more than this number—if the actual conditions among our professional brothers on the other side were realized.

War Dietary and Scurvy.—The death of a patient from scurvy in the Poor Laws hospital in Glasgow prompted the investigation of the occurrence of scurvy. This was deemed important in view of the enforced changes in diet of many people on account of war conditions. The investigations disclosed that under normal conditions three or four patients with scurvy are admitted to each of the Poor Laws hospitals each year. Since the middle of February, 1917, however, according to an article in the *Medical Officer* (London), fifty patients with scurvy have been admitted. It is said that all of these cases occurred in males, and appeared to occur only in men who live in model lodging houses or who live alone. This it is said suggests improper selection and preparation of food. The superintendent of one of the hospitals believes that the shortage of potatoes has much to do in the occurrence of scurvy, this being the only fresh vegetable customarily used by this class of patients.

Medical Mobilization and the War

PHYSICIANS RECOMMENDED FOR COMMISSION IN RESERVE CORPS

During the week ending Sept. 29, 1917, 522 physicians were recommended for commission in the Medical Reserve Corps, the proportion being six majors, seventy captains and 446 lieutenants.

During the week ending Oct. 6, 1917, 252 physicians were recommended to the Adjutant-General of the Army for commission in the Medical Reserve Corps, the proportion being one major, twenty-seven captains and 224 lieutenants.

NEWS OF THE CANTONMENTS

[From Our Special Correspondents]

Camp Pike, Ark.

Camp Pike, the location of the Eighty-Seventh Division of the National Army, is situated in the hills about 5 miles north of Little Rock. The camp itself occupies a fairly level spot cleared from a forest of small oak. The surrounding scenery is very beautiful. The camp is largely completed as far as buildings are concerned, but the roads and the walks for foot passengers have yet, to a great extent, to be finished. An area about 2 miles long by 1 mile wide would contain the main portion of the camp.

The great army of drafted men are coming in, a few hundred daily, and the physical examination is being done in thirteen regimental infirmaries. So far about 18,000 men have been examined. The last increment consisted of 1,600 colored men, who were handled entirely by Regimental Infirmaries 1 and 2, depot troops. The commissioned medical personnel doing this examining was largely taken from the training school at Fort Riley, Kan. About thirty-five medical officers of the Reserve Corps have handled this 18,000 and have entered on their duties with energy and dispatch. All men requiring further examination have been sent to a board of specialists especially designated for that service at the base hospital.

THE BASE HOSPITAL

The 1,000 bed base hospital at this point under the command of Major A. P. Upshur, M. C., is a group of one story buildings, the floor space of which covers over 20 acres. It takes an hour of casual inspection to walk through it. The health of the command at present is good, and the hospital had only a little over 100 admissions during the past week. There has been some measles in the command, but nothing of a serious nature. While Camp Pike has had a rather high malarial rate in the past, every effort is being made to prevent the breeding of mosquitoes in this locality, and the work is being pushed by Major Charles E. Freeman, M. C., who is sanitary inspector for this division. Camp Pike is very well drained, and the water supply is excellent.

Under the leadership and direction of Lieut.-Col. Robert M. Thornburgh, the medical work of the division is rapidly assuming the proportions of a well oiled and well operated machine. Major Russel R. Jones, M. R. C., recently ordered here from Fort Oglethorpe, where he has been since June 1 as an instructor in the M. O. T. C., arrived a few days ago and assumed his duties as assistant to the division surgeon.

PROBLEMS OF THE DIVISION SURGEON

The problems confronting the division surgeon in the opening and establishing of his office are multitudinous, multifarious and never ceasing. Men of every station and grade, from the millionaire to the pauper and from the highly intellectual to the moron, come trooping daily down the streets of Camp Pike to meet their fate at the hands of the hard working crew of medical officers, who a few months before were leading the independent life of the civilian physician. To select the true from the false, the mentally weak from the mentally strong, the crippled from the well, the sightless from the seeing, and to do no injustice to any one has certainly taxed the mental and physical energies of the examiners to the utmost. There is a general impression that at least here there were few exemptions. The lame, the halt and the blind have come here to have it decided whether of such material could be made the "little buck private" of the U. S. Army. Men have come into Camp Pike, led by hand, with wooden legs, in the advanced stages of pulmonary tuberculosis, feebleminded and insane, and with every imaginable condition and physical deformity of the most pronounced character. Paralytics and epileptics are not uncommon. There are a great many things about these men that arouse one's sympathies. Occasionally one comes in bringing his whole family and part of his wife's relations along.

THE SANITARY TRAIN

The Sanitary Train of the Eighty-Seventh Division has received about half its enlisted quota. Lieut. R. H. Davies of Fort Riley, Kan., and Chicago is in charge of Provisional Field Hospital No. 1, and Lieut. J. B. Steele of Fort Riley, Kan., and Chattanooga, Tenn., is in charge of Provisional Ambulance Company No. 1. Lieutenants Davies and Steele are unofficially directing the field hospital and ambulance work, respectively. Recent additions to the sanitary train are Red Cross Ambulance Company 44 of Topeka, Kan., with five officers and 118 men, in charge of Lieutenant Lerrigo, and Red Cross Ambulance Company 39 of Mississippi, with thirty men and no other officers, in charge of Capt. Nolan Stewart. Provisional Field Hospital No. 1 has its full equipment, and there is now complete equipment here for two ambulance companies. The sanitary train is to be completed as regards personnel at an early date.

The regimental infirmaries of the Eighty-Seventh Division are all fully equipped and are handling their work in a thorough and efficient manner.

A recent promotion was that of Capt. Amos Gale Straw of the roentgen-ray department at the base hospital to the grade of Major.

Camp Wheeler

106TH SANITARY TRAIN, 31ST DIVISION

The train now consists of Field Hospitals Nos. 121 (Florida), 124 (Alabama), and 122 and 123 formed from equal division of Georgia Field Hospital No. 1. Numbers 121 and 123 are designated as motor companies and 122 and 124 as animal drawn. Major George L. Keenan, M. C., N. G. (Mass.), commands the section.

Ambulance Company No. 1 of Alabama has been divided into four equal parts, each the nucleus of Ambulance Companies Nos. *121, 122, 123, 124,* two motor and two animal drawn; Major Job Patterson, M. C., N. G. (Ga.), commands the section.

Many of the officers' families have arrived and taken permanent quarters in Macon, and are interesting themselves actively in Red Cross affairs.

The members of the orchestra of the Florida Field Hospital (No. *121*) are the recipients of much favorable comment on their work. They merit it.

Last week a pleasant social was held, introducing the ladies of the train. Supper was served in one of the large mess halls after which the Florida Hospital orchestra played for dancing until 10:30. It is the intention of the train to make these socials a weekly affair on Wednesday evenings. The guest of the evening was Lieut.-Col. Louis C. Duncan, M. C., U. S. Army, division surgeon.

The camp hospital has now assumed large proportions and its conduct and management under Major Lorne A. Greene, M. C., N. G. (No. 12) is the wonder of visiting officers, Red Cross officials and civilians. The aid of the Red Cross of Macon has been of invaluable assistance, and their donations of pillows, sheets and delicacies have certainly been appreciated by the patients. The hospital cares for about 250 patients.

The urgent need of men to complete the train complement is strongly felt. One hundred men are needed in the field hospital section and 300 in the ambulance section. Yet, withal, our camp is unequaled in the division.

Great interest is evinced by officers and men in the first-aid dugouts to be built in connection with the trench system now being constructed by the division engineer.

The officers of the mounted organization of the sanitary train ride into the country each Wednesday afternoon studying roads, topography, mapping, etc. Problems will be taken up in November.

The Red Cross Association is spending several thousand dollars in clearing up the area about the camp. Surgeon Williams of the P. H. S. directs under the persuasion of Colonel Duncan. The Chamber of Commerce of the city of Macon appropriated $4,000 to help clean up the city.

The base hospital, Major R. W. Bliss, M. C., U. S. Army, commanding, will soon be ready to open, with 500 beds.

BASE HOSPITAL NOTES

The base hospital at Camp Wheeler is still under construction; no buildings are as yet completed. Our staff is all here and officers and men are having daily instruction.

At present all cases are sent to the field hospital. There are fifteen wards, each having on an average of twenty-five beds. It has been said that this is the largest field hospital in the history of the United States Army. This condition is accounted for by the fact that the base hospital is doing all its work there and at present several members of the base hospital staff are connected with the field hospital.

Lieutenant Horne was operated on for appendicitis by Major Cole about two weeks ago and is now sitting up and doing finely.

Lieutenants Upchurch and Miller, genito-urinary men from the base hospital, are doing the genito-urinary work at field hospital for the entire camp. They say they have not much time to gossip.

The officers quarters at the base hospital are practically completed and will be occupied the early part of this week.

Camp McClellan, Anniston, Ala.

The medical history of Camp McClellan dates from Aug. 18, 1917, when the First Virginia Field Hospital, in command of Major J. C. Bowman, arrived at camp. Being the first troops of the Twenty-Ninth Division to arrive in camp, the camp hospital was established by that organization, and it successfully cared for all the sick of the division until September 28, when the base hospital opened its doors.

PERSONNEL

The following assignments for the division have been made: Lieut.-Col. C. R. Snyder, M. C., U. S. Army, division surgeon; Major Junius F. Lynch, M. C., Va. N. G., former chief surgeon of Virginia National Guard, assistant division surgeon; Major J. H. Ulrich, M. C., Md. N. G., Baltimore, division sanitary inspector; Major James S. Fox, M. C., U. S. Army, commanding officer, base hospital; Major Valentine Ruch, M. C., N. G. N. J., former assistant chief surgeon, New Jersey National Guard, director, ambulance companies; Major L. H. Reichelderfer, M. C., D. C. N. G., former chief surgeon, District of Columbia National Guard, director, field hospitals.

The sanitary train of this division has been designated as the 104th sanitary train.

EXEMPTION OF MEDICAL STUDENTS AND INTERNS

Advice to Medical Students

Paragraph 1, Section Z of compiled rulings of Provost Marshal-General Number 11, dated Sept. 4, 1917, reads as follows:

> Hospital interns who are graduates of well recognized medical schools or medical students in their fourth, third or second year in any well recognized medical school, who have *not* been called by a local board for physical examination may enlist in the Enlisted Reserve Corps provided for by Section 55 of the National Defense Act under regulations to be issued by the Surgeon-General and if they are thereafter called by a local board, they may be discharged on proper claim presented on the ground that they are in the military service of the United States.

MEDICAL STUDENTS AND INTERNS NOT YET DRAFTED

In accordance with the above, the Surgeon-General has provided special regulations applicable to hospital interns and medical students. These may be summarized as follows:

"(*a*) Medical students and interns who have *not* been drafted may enlist in the Medical Enlisted Reserve Corps and thus be released from subsequent draft.

"(*b*) Interns who have served one year or more will not be enlisted in the Medical Enlisted Reserve Corps.

"(*c*) Any intern who is enlisted in the Medical Enlisted Reserve Corps may be called into service if needed at the end of one year of internship.

"(*d*) A medical student enlisted in the Medical Enlisted Reserve Corps may be called into active service under his enlistment if his services are needed or on failing to pass one class to another or on failing to graduate.

"(*e*) An internship of more than one year will not be recognized.

"(*f*) Hospitals, sanitariums and other institutions running for private gain will not be recognized in the consideration of interns.

"(*g*) The dean of the medical faculty must report twice a year on the status and progress of students in his school enlisted in the Medical Enlisted Reserve Corps."

Medical students and interns who have been accepted for the draft have already been given the opportunity of taking advantage of these special regulations and with these the advice offered at present has nothing to do. The question now under consideration is, What should medical students (who have *not* been called by a local board) and interns (who have not served one year or more) do in regard to enlisting in the Medical Enlisted Reserve Corps? This procedure is opened to them and we strongly advise that every medical student in a well recognized medical school and every intern who is a graduate of a well recognized medical school and who has served less than one year as an intern, should make application to the Surgeon-General for enlistment in the Medical Enlisted Reserve Corps.

ANNOUNCEMENT OF STAFF OFFICERS

National Guard Division

The following is a list of the medical staff officers in the various National Guard divisions:

26th Division.—Lieut-Col. James L. Bevans, surgeon; Major John G. Towne, assistant surgeon.

27th Division.—Camp Wadsworth, Spartanburg, S. C.: Lieut.-Col. Edward R. Maloney, surgeon; Lieut.-Col. Walter C. Montgomery, sanitary inspector; Major Lefferts Hutton, assistant surgeon.

28th Division.—Camp Hancock, Wheless, Ga.: Lieut.-Col. William J. Crookston, surgeon; Major C. A. Dillinger, assistant surgeon; Major William E. Kellar, sanitary inspector.

29th Division.—Camp McClellan, Anniston, Ala.: Lieut.-Col. Craig R. Snyder, surgeon; Major Junius F. Lynch, assistant surgeon; Major J. H. Ullrich, sanitary inspector.

30th Division.—Camp Sevier, Greenville, S. C.: Lieut.-Col. Arthur M. Whaley, surgeon; Major Alexander M. Brails, assistant surgeon; Major Naniwell, sanitary inspector.

31st Division.—Camp Wheeler, Macon, Ga.: Lieut.-Col. Louis C. Duncan, surgeon; Major William A. Padgett, assistant surgeon; Major Raymond C. Turck, sanitary inspector.

32d Division.—Camp MacArthur, Waco, Texas: Lieut.-Col. Perry L. Boyer, surgeon; Capt. Randall N. Cooley, assistant surgeon; Major Gilbert E. Seaman, sanitary inspector.

33d Division.—Camp Logan, Houston, Texas: Lieut.-Col. Levy M. Hathaway, surgeon; Major Gustavus M. Blech, assistant surgeon.

34th Division.—Camp Cody, Deming, N. M.: Lieut.-Col. Jacob L. Coffin, surgeon; Capt. L. B. Sturdevant, assistant surgeon; Major James E. Merrill, sanitary inspector.

35th Division.—Camp Doniphan, Fort Sill, Okla.: Lieut.-Col. William Davidson, surgeon.

36th Division.—Camp Bowie, Fort Worth, Texas: Lieut.-Col. Raymond F. Metcalfe, surgeon; Major John J. O'Reilly, assistant surgeon; Major Floyd J. Boland, sanitary inspector.

37th Division.—Camp Sheridan, Montgomery, Ala.: Lieut.-Col. Joseph A. Hall, surgeon; Major John C. Darby, assistant surgeon; Major Charles A. Neal, sanitary inspector.

38th Division.—Camp Shelby, Hattiesburg, Miss.: Lieut.-Col. Robert M. Blanchard, surgeon; Capt. A. C. L. Percefull, assistant surgeon; L. D. Carter, sanitary inspector.

39th Division.—Camp Beauregard, Alexandria, La.: Lieut.-Col. William N. Sinart, surgeon; Major John W. D. Dicks, assistant surgeon; Lieut.-Col. W. S. Schauffler, sanitary inspector.

40th Division.—Camp Kearny, San Diego, Calif.: Lieut.-Col. Alexander Murray, surgeon; Major William A. Jelley, assistant surgeon; Major Charles W. Decker, sanitary inspector.

41st Division.—Camp Fremont, Charlotte, N. C.: Lieut.-Col. Orville G. Brown, surgeon; Major F. M. Carroll, assistant surgeon.

National Army Divisions

The following are staff officers of the National Army divisions:

76th Division.—Camp Devens, Ayer, Mass.: Lieut.-Col. Llewelyn P. Williamson, surgeon; Major Joseph L. Siner, assistant surgeon.

77th Division.—Camp Upton, Yaphank, L. I.: Lieut.-Col. Charles R. Reynolds, surgeon; Major Alvin Schoenleber, assistant surgeon.

78th Division.—Camp Dix, Wrightstown, N. J.: Lieut.-Col. George M. Ekwurzel, surgeon; Lieut.-Col. John W. Hanner, assistant surgeon.

79th Division.—Camp Meade, Admiral, Md.: Lieut.-Col. Philip W. Huntington, surgeon; Major Guy L. Qualls, assistant surgeon.

80th Division.—Camp Lee, Petersburg, Va.: Lieut.-Col. Charles E. Marrow, surgeon; Major Henry P. Carter, assistant surgeon.

81st Division.—Camp Jackson, Columbia, S. C.: Lieut.-Col. Kent Nelson, surgeon; Major Thomas J. Leary, assistant surgeon.

82d Division.—Camp Gordon, Atlanta, Ga.: Lieut.-Col. Conrad E. Koerper, surgeon; Major William T. Cade, assistant surgeon.

83d Division.—Camp Sherman, Chillicothe, Ohio: Lieut.-Col. Wallace DeWitt, surgeon; Lieut.-Col. Samuel J. Morris, assistant surgeon.

84th Division.—Camp Taylor, Dumesnil, Ky.: Lieut.-Col. John H. Allen, surgeon; Major Luther R. Poust, assistant surgeon.

85th Division.—Camp Custer, Battle Creek, Mich.: Lieut.-Col. Cosam J. Bartlett, surgeon; Lieut.-Col. William A. Powell, assistant surgeon.

86th Division.—Camp Grant, Rockford, Ill.: Lieut.-Col. James M. Phalen, surgeon; Lieut.-Col. Howard H. Bailey, assistant surgeon.

87th Division.—Camp Pike, Little Rock, Ark.: Lieut.-Col. Robert M. Thornburgh, surgeon; Major Charles E. Freeman, assistant surgeon.

88th Division.—Camp Dodge, Des Moines, Iowa: Lieut.-Col. Jay R. Shook, surgeon; Major Clarence E. Fronk, assistant surgeon.

89th Division.—Camp Funston, Fort Riley, Kan.: Lieut.-Col. John L. Shepard, surgeon; Lieut.-Col. Frank W. Weed, assistant surgeon.

90th Division.—Camp Travis, San Antonio, Texas: Lieut.-Col. Paul S. Halloran, surgeon; Lieut.-Col. Robert H. Pierson, assistant surgeon.

91st Division.—Camp Lewis, American Lake, Wash.: Lieut.-Col. Peter C. Field, surgeon; Lieut.-Col. Lloyd L. Smith, assistant surgeon.

PROTECTION AGAINST VENEREAL DISEASES

On September 29, Senator Weeks reported a bill from the Committee on Military Affairs for the protection of military and naval forces, the aim being to guard these forces from physical and moral injuries of commercialized prostitution. It was read the first time by its title and the second time at length, as follows:

> *Be it enacted*, etc., That it shall be unlawful to keep or assist in keeping a place of prostitution to which any person known to be a member of the military or naval forces of the United States is admitted or to admit any such member to such place, or to knowingly rent or in any manner allow the use of any place for acts of prostitution with any member of such military or naval forces. No person shall solicit or seek to induce any person known to be a member of such military or naval forces to enter any place of prostitution or to consort or cohabit with any prostitute. Knowledge that a person is a member of the military or naval forces of the United States may be prima facie established by proof showing that the accused had knowledge that at the time or recently before the commission of the offense the person alleged to be a member of such military or naval forces was wearing the uniform of such military or naval forces. Whoever shall violate any of the provisions of this section shall be guilty of a misdemeanor and shall be punished by a fine of not more than $1,000 or imprisonment not more than one year, or by both such fine and imprisonment.
>
> Sec. 2. That it shall be unlawful for any person who has been convicted of disorderly conduct, delinquency, soliciting for prostitution, or any other sexual offense, without having first obtained permission from the proper military authorities, to loiter in or around a military camp, fort, navy yard, or place of training or mobilization. Any such person present in or around such camp, fort, navy yard, or place of training or mobilization, without authorization or military permission, may be ordered to depart by the civil or military authorities having jurisdiction therein. Any person failing to depart when so requested shall be guilty of disorderly conduct and shall be punished by a fine of not more than $100 or imprisonment of not more than 60 days, or by both such fine and imprisonment.

The bill was considered as in committee of the whole, reported to the Senate, one amendment ordered to be engrossed for the third reading, read the third time, and passed by the Senate.

INSTRUCTORS OF MEDICAL OFFICERS' TRAINING CAMP CONFER

On Oct. 8, 1917, instructors in the Medical Officers' Training Camps, including Col. Henry Page, Fort Oglethorpe, Ga.; Lieut.-Col. Percy M. Ashburn, Fort Benjamin Harrison, Ind.; Lieut.-Col. William N. Bispham, Fort Riley, Kan., and Major Ernest G. Bingham, Fort Des Moines, Iowa, met at Fort Benjamin Harrison in connection with the meeting of the American Association of Military Surgeons for a conference relative to the standardization of the course of instruction in the Medical Officers' Training Camps.

TAKING CARE OF SOLDIERS' FAMILIES

The *Survey* for September 29 reviews legislation enacted in various states providing allowances for the dependents of soldiers and sailors during the war. Connecticut, Maine, Massachusetts, Michigan, New Hampshire, Vermont and Wisconsin have enacted such legislation, and Colorado, Iowa, Kansas, Minnesota, New Jersey, New York, North Carolina, Oklahoma, Pennsylvania and Rhode Island have taken some sort of state-wide action for the same purpose. The legislation enacted in the states named is compared with the proposed Alexander-Simmons bill now pending in Congress, and points of incompatibility with the proposed national law are pointed out. In some of these states, the schedule of allowances approaches nearly that of the proposed national law, but in others, it is much less. In some of the states, these local laws will be rendered inoperative after the national law is passed. Other states which have not enacted laws providing for the care of dependents have made provisions for increased appropriations to existing institutions for the care of soldiers and sailors, as in the case of Colorado, which made an additional appropriation in 1917 for the Soldiers' and Sailors' Home. In Oklahoma, the State Department of Charities and Corrections has notified the National Defense Committee that the state will, through its hospitals, care for soldiers who may become mentally unbalanced, and is preparing to establish an institution for the care of veterans of the Civil and Spanish-American wars, as well as for those who serve in the present European war and their widows. It will thus be seen that a proper general interest is being taken by the states in the care of those who might otherwise suffer privation from the war.

NEW MEDICAL SERVICE BUREAU FOR RED CROSS

As announced by the Red Cross War Council, the growth of the work of the Red Cross Commissions in European countries during the past two months has made necessary the establishment of a Bureau of Medical Service of Foreign Commissions, to give prompt and expert attention to requests for medical and surgical supplies. This bureau will aid the commissions now at work in France, Russia, Roumania, Italy and Serbia. Requests for additional physicians and nurses, particularly in France and Roumania, for service with these commissions will also be handled by the new bureau. The physicians on this bureau are Drs. R. M. Pearce, Philadelphia, professor of research medicine, University of Pennsylvania, who will be the director; W. C. Bailey, Boston, associate director; Ralph Pemberton, Philadelphia, assistant, and John Gilbert, Philadelphia, secretary. The bureau is furnishing bacteriologists, chemists, surgeons and others for the Red Cross establishments in Paris. Drugs and medical supplies to the amount of more than $500,000 have been shipped to Russia, and three detachments of pediatrists have been recruited for service with the new children's bureau of the Red Cross in France.

WOMEN'S HOSPITAL UNIT ACCEPTED

The mobile hospital unit which the New York Infirmary for Women and Children has prepared has been accepted by the French government, through the High French Commissioner Tardieu. The unit is composed of a hospital with 100 beds and small flying auxiliary units. Its purpose primarily is to work among French women and children who have suffered from a lack of medical attendance, but it will also accept calls for the care of wounded soldiers. Dr. Caroline S. Finley is director of the unit, and expects to leave for France early in October to make arrangements for the reception of the unit. Preparations here are in charge of Dr. Anna I. Von Sholly and an executive committee, composed of Drs. Mary Lee Edward and Alice Gregory. The expedition is backed by the National Woman Suffrage Association.

AMERICAN ASSOCIATION OF MILITARY SURGEONS

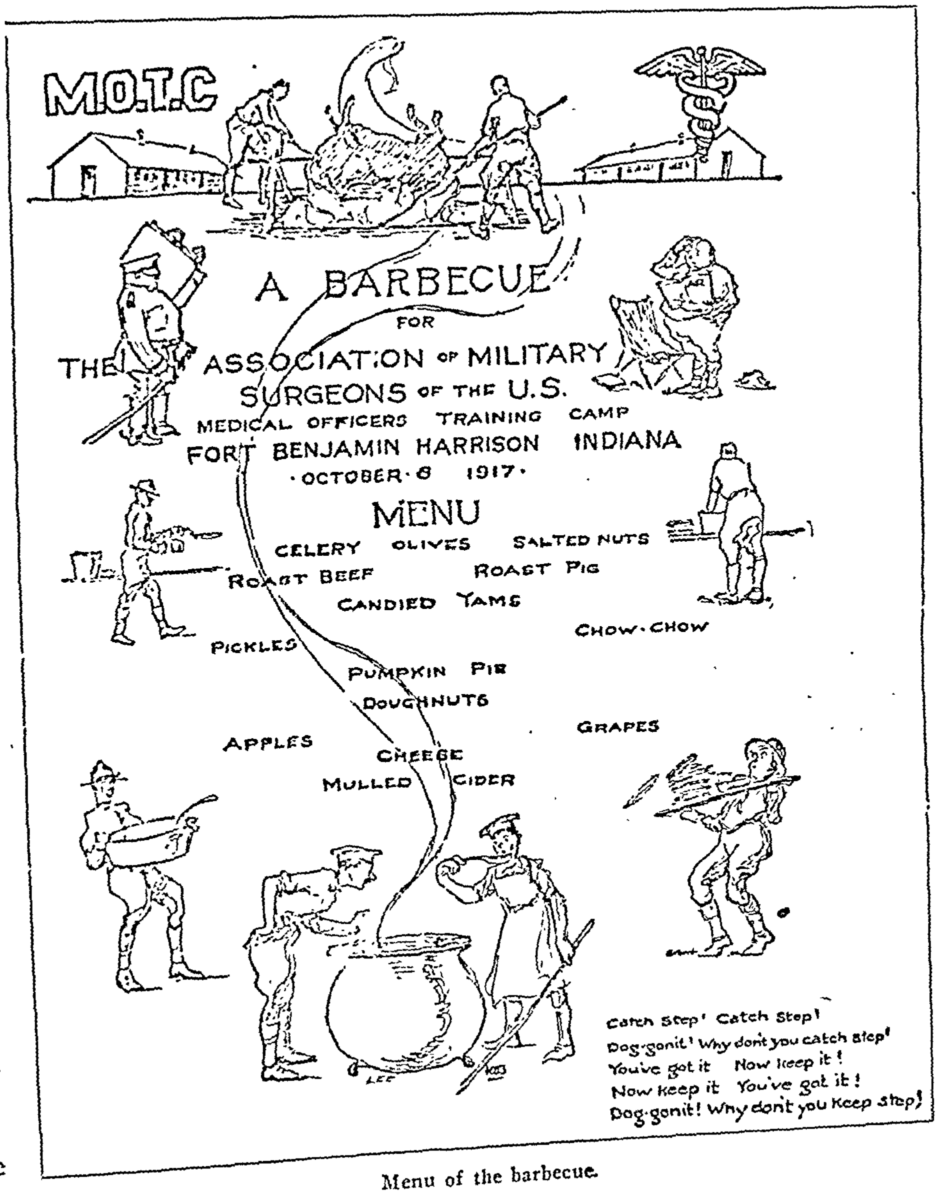
Meeting at Fort Benjamin Harrison

The 1917 meeting of the Association of Military Surgeons began Sunday afternoon, October 7, at Fort Benjamin Harrison. With the onset of the war, a revival of interest in the association has occurred and it now numbers 4,000 members and has a substantial balance in its treasury. In addition to the men attending the meeting of the association, there were among the audience the 1,200 physicians who are taking the training course at Fort Benjamin Harrison and such enlisted men as were not engaged elsewhere.

A VISIT TO THE POST

On Sunday afternoon, the guests were invited to inspect the fort. There were included Captain Lung, medical director, U. S. Navy; Col. Charles Dircle and Major Edward Rist of the French Medical Corps; Col. T. H. Goodwin and Capt. J. Gilmour, R. A. M. C.; Cols. W. A. J. Shockley, E. L. Munson, W. N. Bispham and Henry Page, M. C., U. S. Army; Surg.-Gen. Rupert Blue and Asst. Surg.-Gen. W. C. Rucker, U. S. P. H. S., and Majors V. C. Vaughan and Joseph C. Bloodgood, M. R. C., U. S. Army. The first point visited was the sewage destruction pits designed by Col. Percy M. Ashburn, commandant, M. O. T. C., Fort Benjamin Harrison. Pits 6 feet deep are dug and the refuse poured in from iron cans, then covered with oil and allowed to digest itself.

The inspection of the field ambulances brought forth the interesting comment from the British officers that all of the British ambulances were now heated, utilizing the exhaust from the engine. None of the American ambulances were constructed with this provision.


M.O.T.C
A BARBECUE
FOR
THE ASSOCIATION OF MILITARY
SURGEONS OF THE U.S.
MEDICAL OFFICERS TRAINING CAMP
FORT BENJAMIN HARRISON INDIANA
·OCTOBER·8 1917·
MENU
CELERY OLIVES SALTED NUTS
ROAST BEEF ROAST PIG
CANDIED YAMS
PICKLES CHOW-CHOW
PUMPKIN PIE
DOUGHNUTS
APPLES GRAPES
CHEESE
MULLED CIDER
Catch step! Catch step!
Dog-gonit! Why don't you catch step!
You've got it Now keep it!
Now keep it You've got it!
Dog-gonit! Why don't you keep step!
LEE

Menu of the barbecue.

EVENING SESSION

In the evening, the guests were assembled at the open-air speaking stand, which was surrounded with huge bonfires. Colonel Ashburn introduced Colonel Goodwin and Major Rist, who addressed the audience, felicitating the medical officers on the fact that France, England and America were now united as brothers in a common cause. A vaudeville program was provided by the medical officers in the training camp and the enlisted men, especially noteworthy being the singing of Paul U. Davies, professor of music in the Metropolitan School of Music, now an officer in the Ambulance Corps, and recitations by Capt. Daniel Hoyt, Philadelphia, of Company No. 2.

MONDAY MORNING

The Monday morning session was opened with the address of the president, Surg.-Gen. Rupert Blue, who called attention to the excellent status of the association and the great things promised for the future. Major Eduard Rist spoke on "Tuberculosis in the French Army." He said that the figures as to the prevalence of this disease have been greatly exaggerated. Out of 1,000 soldiers sent back to base hospitals with the diagnosis of pulmonary tuberculosis, all except 193 were returned to the front because the diagnosis could not be substantiated.

Reports were then received from the various officers of the association, and committees were appointed.

ADDRESS BY MAJOR VAUGHAN

The morning session was closed with a patriotic address by Major Victor C. Vaughan, which was most enthusiastically received. The men cheered until the speaker was forced to rise and bow his acknowledgment. Major Vaughan told of his experiences in the Spanish-American War when he entered as a reserve officer and made himself subject to court martial the first day by a kindly letter of protest to the colonel. He followed with a special address to men of German parentage or German sympathies in which he stated that he was convinced that all Germans were not in sympathy with the militaristic policy of the government. When in Berlin in 1907, Major Vaughan met Wassermann, the noted serologist. Late in the afternoon, Wassermann and Major Vaughan, leaving the Institute for Infectious Diseases, walked toward the city. They passed a barracks in which 50,000 soldiers were quartered on Berlin and at that time a hope was expressed that some day the flag of a republican Germany would fly over the buildings devoted, not to militarism, but to some scientific or peaceful purpose. Major Vaughan eulogized the student officers for volunteering without a draft and coming forth so nobly to do their duty. He told them that after the war they might not find their practices conserved, but they would more likely find that during their absence their competitors had fattened on their practice. They might be compelled to reestablish themselves in some side street, while their competitors held forth on the avenue, but they would be proud in their realization that they had served their country, whereas the competitor would find himself much abashed when his son asked him what he had done in the great war.

AFTERNOON SESSION

Most of the visitors took lunch at the mess of the student officers. The afternoon session opened with an address by Surgeon-General Braisted, M. C., U. S. Navy. General Braisted said that the Navy has obtained practically all the medical men needed for its service. Twenty-seven naval base hospitals have been constituted and five are already abroad on active duty. Following the address of Surgeon-General Braisted was a symposium by Col. Louis A. LaGarde, M. C., U. S. Army (retired); P. A. Surg. H. B. Eaton, U. S. Navy, whose paper was read by Fleet Surgeon McCulloch and Assistant Surgeon-General Rucker of the U. S. P. H. S., on "The Way in Which the Medical Military Service of the Government May Best Cooperate in Time of War." P. A. Surgeon Eaton was disappointed that the draft should have concerned only the Army without realization of the needs of the Navy, and stated that a true democracy would have drafted equally for the Navy as for the Army. Dr. Rucker expressed the hope that some day we might have a U. S. Medical Department in which all of the service could be united in one department working together under a common head. Major Joseph C. Bloodgood addressed the officers on various aspects of the surgery of the war and the questions for the civilian physician called to army life. Colonel Goodwin spoke on practical medical military lessons of the war, bringing up particularly questions of transportation and evacuation of the wounded.

PARADE AND REVIEW

The afternoon was closed with a parade and review of the medical officers' training camp. Some 5,000 men passed in review before the visitors. Just previous to the parade, Surgeon-General Gorgas arrived from Washington in time to see the brilliant strides made by the medical officers and the enlisted men of the medical department in their new duties.

THE BARBECUE

At 5:30 a barbecue supper, which had been prepared under the direction of Capt. Charles Parkes, M. R. C., Chicago, mess sergeant of Company No. 1, attracted the immediate attention of visitors, student officers and a host of guests.

On the platform at Fort Benjamin Harrison. From left to right: W. Colby Rucker, Asst. Surgeon-General, U. S. P. H. S.; Col. Edward L. Munson, M. C., U. S. A.; Surgeon-General Rupert Blue, U. S. P. H. S.; Capt. J. Gilmore, R. A. M. C.; Col. Charles Dircle, French Army Medical Corps; Major Eduard Rist, French Army M. C.; Col. T. C. Goodwin, R. A. M. C.; Capt. George A. Lung, Medical Director, U. S. N., and Col. Henry Page, commandant, M. O. T. C., Fort Oglethorpe, Ga.

THE NIGHT SESSION

The chilly night air and the fact that the motion pictures to accompany the address of Col. Charles Dirkel on "Medical Service on the Western Front" were not adapted to the motion picture machine caused the assembly to seek the neighborhood of the numerous bonfires. In the interim until new pictures could be brought, Surgeon-General Gorgas made a brief address and the choruses of the various companies vied in singing songs of the training camp. A parade-symbolizing the changes in the medical officer from his first arrival in camp until the completion of his course of instruction was one of the features of the evening.

NOTES

A sensation was created when Major McCormick's dog leaped into the sewage disposal pit, evidently believing it was the River Marne. He came out covered with ignominy and other things, and leaped into the major's car. The occupants of the car gave the dog complete possession, until he departed, and he could hardly find a dog on the grounds willing to associate with him although every company has at least two of indefinite ancestry. Later on he succeeded in removing most of the effluvia in an attempt to rout out a recalcitrant woodchuck; the remainder was washed off by a forced bath in Fall Creek. The officers of the Public Health Service were inclined to quarantine him, but relented following the disinfection and cleansing mentioned.

Some 300 civilian visitors took part in the barbecue. This gave opportunity to student officers to call each other major, and a few even became colonels pro tem.

The field ambulance at Fort Benjamin Harrison is equally divided among motor and army mule transportation. The American army mule was a subject of the greatest admiration to the foreign visitors, as were also the cavalry horses available at Fort Benjamin Harrison. Colonel Goodwin expressed sadness, as did many of the other American officers, at the gradual replacing of the "animals" by the less personal motor.

Colonel Dircle bears the scars of ninety-six shrapnel wounds.

At the barbecue supper four whole beeves, eight sheep, four pigs, 500 pumpkin pies, 4,000 doughnuts, ten barrels of sweet potatoes and six barrels of apples were eaten. The trimmings included thirty-five cases of celery and 100 pounds of salted peanuts.

During the parade and review Colonels Page, Bispham, Bingham and other instructors from the rival training camps stood around, watched the review and gnashed their teeth.

Exchange of Medical Officers Between France and Germany

The Germans accepted in 1916 the proposal to exchange the medical prisoners of war, and about three fourths of the French medical officers kept captive in Germany had been returned by October, but then no more were allowed to leave Germany. In April, 1917, the German government took up the matter again, and sent a list of their medical captives which they were willing to exchange. The French government checked up the list and designated the sixteen physicians and 759 other members of the sanitary service who had been designated in the agreement dated July, 1916, and demanded that these should be repatriated first of all. Germany accepted this, and the party recently arrived at Lyons. It has been agreed that the other medical officers and sanitary force are to be repatriated now in and with the least possible delay.

New Units to Camp

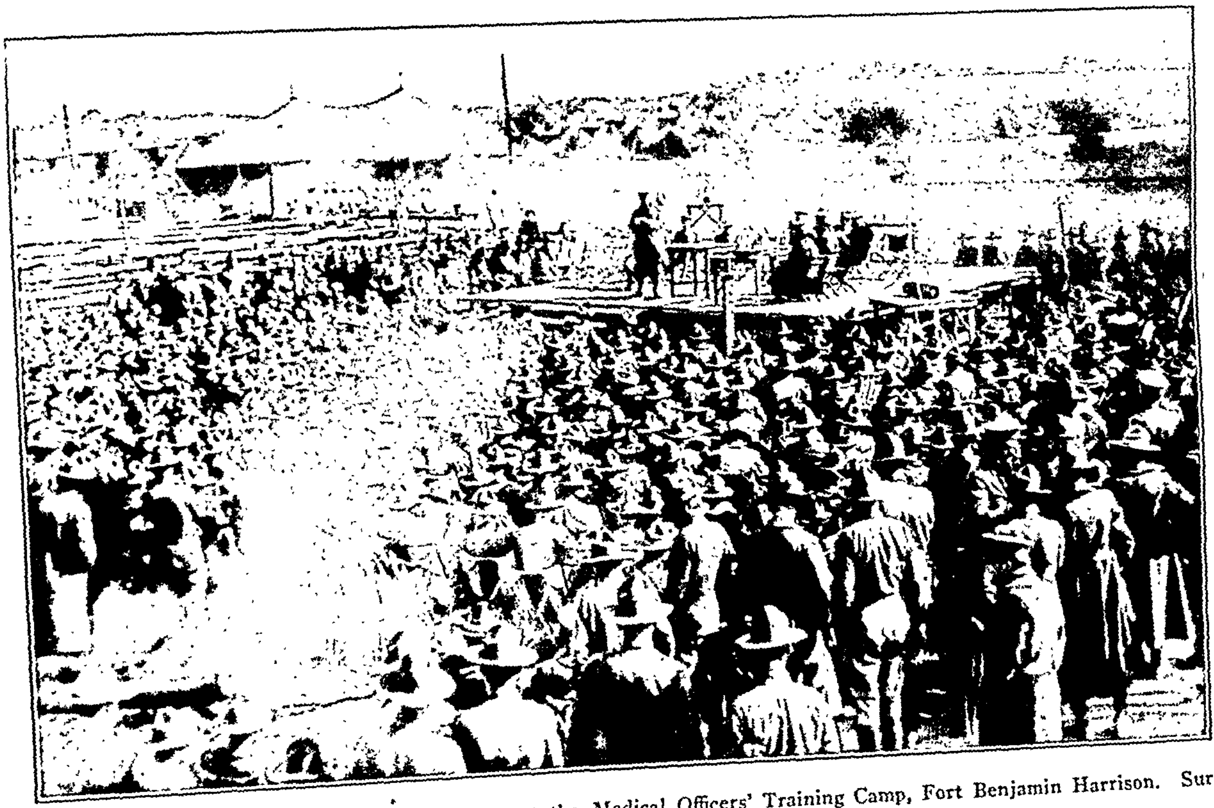
Two new units comprising Red Cross Ambulance Companies No. 4, Cleveland, and No. 3, Minneapolis, have reached the United States Ambulance Service Training Camp, Allentown, and a headquarters unit has been established at the camp by Director Col. Elbert E. Persons, under command of Col. Rossner E. Graham, M. R. C., New Orleans.

Court Martial

Asst. Surg. Thomas A. Fortescue, U. S. Army, is said to have been tried by general court martial at the Navy Yard, Norfolk, Va., on a charge of culpable negligence and inefficiency in the performance of duty, and to have been sentenced to lose three numbers. The Secretary of the Navy has approved the proceedings.

Bushnell's Retirement

Col. George E. Bushnell, M. C., U. S. Army, was transferred to the retired list, September 4, on attaining the age of 60. Colonel Bushnell entered the Medical Corps in February, 1881. He has given especial attention to the study of tuberculosis, and for many years he has been in command of the general hospital devoted to the treatment of tuberculosis at Fort Bayard, New Mexico.



First session of the Association of Military Surgeons at the Medical Officers' Training Camp, Fort Benjamin Harrison. Surgeon-General Rupert Blue, U. S. P. H. S., president of the association, delivering the opening address.

Personal

Lieut.-Col. Robert B. Grubbs, M. C., U. S. Army, was retired from active service, September 21, on account of disability incident to the service.——Surg-Gen. Presley M. Rixey, U. S. Navy, retired, has been recalled to active duty, and is now making an inspection tour of the Naval Coasts and Hospitals in the United States.——Capt. John S. Fulton, Baltimore, has been added to the board to prepare material for a medical and surgical history of the war.——Medical Inspector Frank L. Pleadwell, U. S. Navy, has returned after service in England and along the western front since May, 1916. During this time he visited sixty-four hospitals, five ambulance trains, six training and convalescent camps, twenty naval vessels, including eleven hospital ships, and four medical service schools, the High Seas fleet, the British trenches in France and the Italian front on the Isonzo.——Capt. James W. Inches, M. R. C., U. S. Army, health officer of Detroit, who sailed for France, September 5, as a member of a Red Cross Mission to investigate the needs of soldiers at the front, arrived, September 25.

NEWS OF THE TRAINING CAMPS

At Fort Oglethorpe

The week of October 1, at Camp Greenleaf has, from a seasonal point of view, been one of the most delightful since the beginning of camp. Early autumn weather of the choicest sort prevailing, with its accompanying harvest moon, has made the nights poetic dreams. One of the most beautiful nights was taken advantage of by the commandant who gave a lecture out in the open, there being no other illumination than the moon. The lecturer was at his best, the scenic effect beautiful beyond description, and the impression made on the men a lasting one.

MESS AT FORT OGLETHORPE

A distinct departure from the mess as conducted at the other Medical Officers' Training Camps is that initiated by Col. Henry Page at Camp Greenleaf, Fort Oglethorpe, Ga. The medical officers are marched into the mess hall at "attention" and are seated in order. After mess the men are again called to attention, and empty plates are shown. The reduction in wastage approximated 60 per cent. when an average ration was served to each man, and empty plates were shown after mess. This might be regarded as a practical demonstration in food conservation.

HIKES

Practice hikes have been in order this week and five or six marches have been made. On Friday the entire student body hiked to Jays Mill, the spot where the battle of Chickamauga started, and witnessed the erection of a complete field hospital. Lieutenant-Colonel Carswell, the director of field hospitals, was in charge and the demonstration he gave was a most interesting one.

NEW MEN

There has been an influx of new men into camp this week and at present there are nearly 1,400 medical officers here. The ages of the men are younger than at the first camp.

NEW INSTRUCTORS

Lieut.-Col. Roger Brooke, the senior instructor, has increased his corps of instructors and now he has courses so arranged that the new men do not have to enter in the midst of the course without knowing what has gone on before. The brunt of the teaching has fallen on the shoulders of Colonel Brooke and his ability as an instructor is unsurpassed. The majority of the men acclaim him as superior to their old "profs." which within itself is somewhat of a miracle for it is a well known fact that medical men seldom acknowledge that any one can compare with the instructors in their old alma mater.

RETREAT

Each evening at 5:15 o'clock retreat is held at Camp Greenleaf and the spectacle of so many physicians, many of whom enjoy national reputations, in formation draws countless throngs from Chattanooga and vicinity to witness it. It is most imposing and the lines, as they pass the reviewing officer, are well nigh perfect. A line officer who was present a few evenings ago paid them the very high compliment of saying "they drill like regulars."

PERSONALS

A negro minstrel show, composed entirely of members of this camp, was given at the amphitheater a few evenings ago and was greatly enjoyed. There were many wives of the officers present in the audience. Lieutenant Lemkowitz brought down the entire house when he said that Chattanooga was not a city but a saluting station for Camp Greenleaf.

MARRIAGE OF MAJOR KIRK

Major Norman C. Kirk, M. C., one of our youngest and most popular instructors, put one over on the entire camp last Friday evening by slipping over to the post chapel and marrying Miss Duryea of New York. The proper way to write up a wedding is to mention how the bride was dressed, whether or not she carried a bouquet, and say a word or two about the wedding march, and devote the rest of the space to those present, but owing to the modesty of the guilty parties no one knows about these highly important facts except the parson and he will not tell us a "darn" thing. If good wishes have anything to do with it they will have a long, happy and prosperous voyage on the sea of matrimony.

Major A. C. Abbott gave a most instructive lecture on the fly last Thursday evening. It was illustrated by moving pictures which told in story the dangers of the fly.

Major Owen has been joined by Mrs. Owen and family, who are living on Missionary Ridge.

Capt. Newdigate M. Owensby, M. R. C., has returned from a short visit to Baltimore.

THE NATIONAL GAME

Last Sunday a baseball gave was played on Dyer Field between student companies number 8 and 3. Three company was the victor and is now thinking of issuing a challenge to the winners of the world's series.

Colonel Page, M. C., the commandant, is on a visit to Fort Benjamin Harrison to attend the meeting of the Association of Military Surgeons.

Orders to Officers of the Medical Corps

Lieut.-Col. Robert B. Grubbs, retired, now on duty at the Walter Reed General Hospital, Takoma Park, D. C., is detailed as examiner and witness before the Army Retiring Board, appointed to meet at Washington, D. C., of which Brigadier General Thomas S. Cruse, Quartermaster General, is president; and Major Raymond C. Bull, retired, is relieved.

To San Antonio, Tex., from Fort Logan H. Roots, Ark., and report by letter to the Surgeon General of the Army for the purpose of making special sanitary inspection, Col. William F. Lewis.

To Washington, D. C., from duty at Camp Edge, Sea Girt, N. J., and report in person to the Chief Signal Officer, Aviation Section, Signal Corps, for duty with the Medical Department of the Aviation Section, Signal Corps, Lieut. Col. Nelson Gapon.

To Washington, D. C., from U. S. Army General Hospital No. 1, New York City, for consultation with the Surgeon-General of the Army, Colonel Edward R. Schreiner.

To Watertown, N. Y., Maj. H. W. Jones, to inspect ambulance bodies, and return to Washington.

To Chickamauga Park, Lieut. Col. C. E. Morrow from Madison Barracks, as surgeon of second Regular Army division.

To Surgeon-General's Office, Maj. W. L. Hart, temporarily, then return to Chicago.

To Surgeon-General's Office, Col. D. C. Howard from Canal Zone.

To Camp Sherman, to command Base Hospital, Maj. E. G. Huber, from headquarters Central Department.

The spread for mess at Fort Oglethorpe.

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Camp Shelby, Hattiesburg, Miss., for duty, Capt. Henry B. Powell, Bessemer.

To Camp Sheridan, Montgomery, Ala., from Fort Oglethorpe, for duty, Lieut. Frederick Wilkerson, Montgomery.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Lieut. Charles R. Palmer, Tuscumbia.

To Camp Wheeler, Macon, Ga., 31st Division, for duty, Lieut. George G. Oswalt, York.

To Fort Des Moines, Iowa, for instruction, Lieut. Elisha H. Jones, Talladega.

To Fort Oglethorpe, for instruction, Lieuts. Augustus D. Mathews, Ariton; Harry R. Cogburn, Baylow Labatre; Thomas K. Lewis, Birmingham; Thomas W. Taylor, Dozier; Herbert L. Phillips, Yantley.

ARIZONA

To Fort Oglethorpe, for instruction, Capt. Roderick D. Kennedy, Globe.

To Linda Vista, Calif., for duty, Capt. L. Jacobs, Yuma.

ARKANSAS

To Atlanta, Ga., for duty, Lieut. A. G. Kelley, DeWitt.

To Camp Beauregard, Alexandria, La., from Camp Pike, Ark., for duty with the First Arkansas National Guards, Lieut. James E. Phillips, Eureka Springs.

To Fort Oglethorpe, for instruction, Lieuts. Forrest P. Baker, Booneville; Floyd Clardy, James W. Ramsey, Jonesboro; Henry P. Ledford, Seppel; George A. Causey, Swifton.

CALIFORNIA

To Camp Cody, Deming, N. M., for duty, Capt. J. K. Ransom, Newman; with 34th Div., Lieut. Colin C. Owen, San Bernardino.

To Camp Kearney, Linda Vista, Calif., for the purpose of conducting cardiovascular examinations and upon completion to return to his home and to the inactive list of the Medical Reserve Corps, Major Walter V. Brem, Los Angeles; for duty as tuberculosis examiners, Capts. Joseph A. Parks, San Diego; William R. P. Clark, James L. Whitney, San Francisco; for duty, C. W. Kellogg, Bakersville; for duty as members of tuberculosis examining board, Lieuts. Henry A. Holt, Pasadena; E. H. Falconer, San Francisco; for duty, Greg Hoskins, Ferndale; F. B. Tapley, Marysville; for duty with 40th Div., as assistant in the care of cardiovascular cases, K. Berkley, San Francisco.

To Camp Lewis, American Lake, Wash., for duty, Lieuts. Richard W. Soper, Berkeley; Charles F. Curtis, Martin P. Hamrick, Los Angeles; R. M. Cox, San Luis Obispo.

To Fort Douglas, Utah, for the purpose of examining troops in his specialty, Major James R. Moore, Los Angeles; for duty, Capt. David B. Fields, Weaverville.

To Fort Oglethorpe for instruction, Lieuts. Gordon A. Clapp, Lindsay; Pierre N. Charbonnet, Fort McDowell; Ezra R. Bridge, Lavina; William [illegible] Erkenbeck, San Diego.

To Garden City, L. I., for duty, Capt. N. L. Deming, Litchfield.

To Fort Oglethorpe for instruction, Lieut. George H. Dalton, New Britain.

To St. Elizabeth Hospital, Washington, D. C., for a course of study in his specialty, Capt. Arthur B. Coleman, Middletown.

Honorably discharged, Lieut. U. Gardner, New Haven.

DELAWARE

To Camp Wheeler, Ga., for duty, Lieut. H. S. Miller, Wilmington.

DISTRICT OF COLUMBIA

To Camp Dodge, Des Moines, Ia., for duty, Lieut. W. J. Howard, Jr., Washington.

To Camp Gordon, Atlanta, Ga., from Rockefeller Institute, for duty as assistant to the Chief of the Surgical Service, Capt. Edwin M. Hasbrouck, Washington.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. D. L. High, Washington.

To Fort Des Moines, Ia., for instruction, Lieuts. Moses Clayborne, William J. Howard, Jr., Washington.

To Newport News, Va., for duty with 301st Regiment, Lieut. C. C. Marbury, Washington.

To his home, from duty at Rockefeller Institute, New York, N. Y., Lieut. Harry H. Kerr, Washington.

FLORIDA

To Camp Gordon, Atlanta, Ga., with the division of otolaryngology, section of surgery of the head, Capt. A. H. Freeman, Starke.

Empty plates up after mess at Fort Oglethorpe.

To Letterman General Hospital, San Francisco, Calif., for duty, Lieuts. Harold Zimmerman, *Sacramento; Frank* B. Reardan, Turlock.

To Philadelphia, Pa., Jefferson Hospital for instruction in military roentgenology, Lieut. Robert P. Sturr, *San Francisco.*

To his home, from duty at Fort Oglethorpe, and return to inactive list of the Medical Reserve Corps, Lieut. Joseph M. Thueringer, Mobile.

COLORADO

To Camp Bowie, Ft. Worth, Tex., from Ft. Riley, and *report to Commanding* General 36th Division for duty, Capt. John S. Fox, Silverton; Lieut. Lloyd R. Allon, *Colorado Springs.*

To Camp Logan, Houston, Tex., for duty, Lieut. J. H. Brown, Colorado Springs.

To Camp Mills, Garden City, N. Y., with Colorado Field Hospital No. 4, Capt. H. G. Garwood, *Denver;* Lieut. G. W. Bancroft, Colorado Springs.

To Camp Sheridan, Montgomery, Ala., 37th Division, for duty, Lieuts. A. M. Forster, H. W. Hoagland, Colorado Springs.

To Fort Oglethorpe, for *instruction, Capt. Cyrus* L. Persing, Lieuts. Edward W. Collins, William A. Sedwick, Arthur W. Stahl, Denver.

CONNECTICUT

To Camp Bowie, Ft. Worth, Tex., from Ft. Riley, and report to Commanding General, 36th Division, for duty, Capt. Arthur B. Landry, Hartford.

To Camp Devens, Ayer, Mass., for duty, Lieuts. W. H. Flynn, Hartford; L. J. Loewe, Hegganum.

To Camp Taylor, Louisville, Ky., from Ft. Benjamin Harrison, for duty in connection with sanitary train work, Lieut. James E. Hutchison, Hartford.

To Chickamauga, Ga., for duty as division sanitary inspector, Major Chauncey L. Chase, Ford Dade; for duty with *Field Hospital* Section, Sanitary Train, Lieuts. Turner Z. Cason, Jacksonville; for duty with Headquarters Military Police, Lucian B. Dickerson, Clearwater.

To Fort Oglethorpe for instruction, Capt. William B. Moon, to Medical Officers Training Camp as instruct*or in* gas defense, Lieut. R. Leffers, Lakeland.

To Hattiesburg, Miss., Camp Shelby, 38th Division, as member of a board for special tuberculosis examination, Lieut. J. E. Gammon, Jacksonville.

GEORGIA

To Camp Doniphan, Okla., for duty, Lieut. C. J. Woods, Darien.

To Camp Gordon, Atlanta, Ga., for duty, Lieuts. L. J. Keeling, J. C. McDougall, Atlanta; Homer G. Lightner, Montezuma.

To Camp Harris, Macon, Ga., for duty, Capt. *Melton D.* Council, Macon; Lieuts. Herschel A. Smith, Americus; Francis Y. Harrington, Atlanta; John P. Holmes, Macon.

To Camp Sevier, Greenville, S. C., and report in person to the *Commanding General* of the camp and the Commanding Officer of the Base Hospital for duty, Lieut. James F. Wallis, Lovejoys *Station.*

To Fort Des Moines, Ia., for instruction, Lieut. Lexius H. Harper, Augusta.

To Fort Oglethorpe, for instruction, Capt. Harry *Rubin,* Savannah; Lieuts. Erle T. Newsom, Camilla; James H. MacDuffie, Columbus; Algernon C. Colson, Lyons.

To Fort Ontario, N. Y., with Field Hospitals and Ambulance Cos. Nos. 28 and 30, Lieut. H. H. Lang, Augusta.

To his home, from duty at Army Medical School *on account* of being physically disqualified, Lieut. Jesse H. Campbell, Jefferson.

IDAHO

To Camp Cody, Deming, N. M., 54th Division for duty, Lieut. Francis P. Richards, Pocatello.

ILLINOIS

To Army Medical School, Washington, D. C., Lieut. W. F. Petersen, Chicago.

To Camp Bowie, Ft. Worth, Tex., and report to commanding general 36th Division, for duty, Capt. George W. Clarke, Roseville; for duty, Lieuts. Willard P. Earngey, Argyle; Charles W. Monroe, Arthur; Robert S. Berghoff, Harry B. Bernhardt, Jesse F. Boone, Charles W. Colebaugh, William H. Howard, Chicago; August C. Armbruster, Collinsville; Walter W. Boyne, East St. Louis; Lester W. Baker, Herrin, Harlan W. Brink, Hopedale; William E. Chapman, Leland; John L. Aleshire, Plainville; Archie S. Horn, Tampico; Paul R. Allyn, Walter H. Allyn, Waverly.

To Camp Cody, Deming, N. M., from Ft. Riley, for duty, Lieuts. Frank O. Kunz, Beardstown, Louis D. Hughes, Carbondale; Earl B. Miller, Chicago; Reuben A. Moffett, Ladd.

To Camp Dodge, Des Moines, Ia., for duty as chief of the medical service, Major J. L. Miller, Chicago.

To Camp Funston, from Medical Officers' Training Camp, Fort Riley, for duty, Capt. Francis M. Edwards, Centralia; Lieuts. John W. Cornell, John M. Krasa, Albert Martin, Eugene P. Wright, Chicago; Charles M. Fuson, Harrisburg; David A. Morgan, Milwood; Benjamin C. C. Schnell, New Baden; Charles K. Barclay, New Lenox.

To Camp Grant, Rockford, Ill., for duty with 86th Division, as tuberculosis specialist and assistant to the Army Medical Staff, Capts. John H. McClellan, Chicago; for duty, Arthur N. McCord, Streator; Emil Windmueller, Woodstock; Lieuts. Carl V. A. Weichelt, Barrington; George A. McDonald, Goldengate; Richard J. Miller, Kincaid; Orin R. Wakefield, Princeton.

To Camp Mills, Garden City, I. S., from Fort Logan, Tex., for duty with the 42d Division, Lieut. Henry S. Babcock, Danville.

To Camp Pike, Little Rock, Ark., from Fort Oglethorpe, for duty with 87th Division, as tuberculosis specialist and assistant to the Army Medical Staff, Lieut. Arthur G. Compton, Chicago.

To Camp Sheridan, Montgomery, Ala., from Fort Benjamin Harrison, for duty as member of tuberculosis examining board, Lieut. James A. Britton, Chicago.

To Camp Sherman, Chillicothe, O., for duty, Lieuts. G. B. Butt, Chicago; for duty in division of ophthalmology, Section of Surgery of the Head, John W. Earle, Quincy.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Capt. Charles Stevens, Lieuts. William R. Larkin, Chicago; Charles F. Childs, New Boston.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. John V. Dillman, Louisville.

To Chicago, Ill., County Hospital for a course of instruction in military roentgenology, Lieut. Alfred T. Eide, Chicago.

To Detroit, Mich., for duty with Base Hospital No. 36, Lieut. F. L. Stone, Chicago.

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Lieut. Clarence N. Cheadle, Rockford.

To Fort Des Moines, Ia., for instruction, Lieuts. John R. Finley, Chicago; Alonzo T. Griffin, Mound City, Hosea J. Nichols, Quincy.

To Fort Oglethorpe for instruction, Capts George A. Kelso, William A. N. Dorland, Chicago; Lieuts. Herschel V. Brunker, Casey; Robert H. Henderson, William J. Siegler, James A. Valentine, Hulitt J. Wyckoff, Chicago; Lloyd L. Tate, Parrish; Peter T. Spurck, Peoria; Herman C. Tietze, West Salem; for duty, Davis R. Scott, Macomb; for duty as instructor in gas defense, Franz H. Harms, Chicago.

To Fort Riley, in the psychiatric department of the base hospital, Capts. W. D. Napheys, Jr., for duty W. H. Allport, Lieuts. A. G. Bower, C. J. Schoenfeld, Chicago.

To Fort Sheridan, Ill., for duty, Lieut. W. A. Clark, Chicago.

To Fort Worth, Tex., Signal Corps Aviation School, now being established, Lieut. P. J. Lewis, Chicago.

To Hattiesburg, Miss., for duty with 38th Division, as member of board for special tuberculosis examination, Capt. R. E. Adkins, Chicago.

To Mineola, N. Y., for duty, Lieut. G. C. Otrich, Belleville.

To Newport News, Va., for duty with 301st Regiment, Lieuts. J. P. Kissel, Centralia; P. P. Haslitt, Marshall.

To Rockefeller Institute, New York, N. Y., for instruction in laboratory work, Lieut. Joe H. St. John, Chicago.

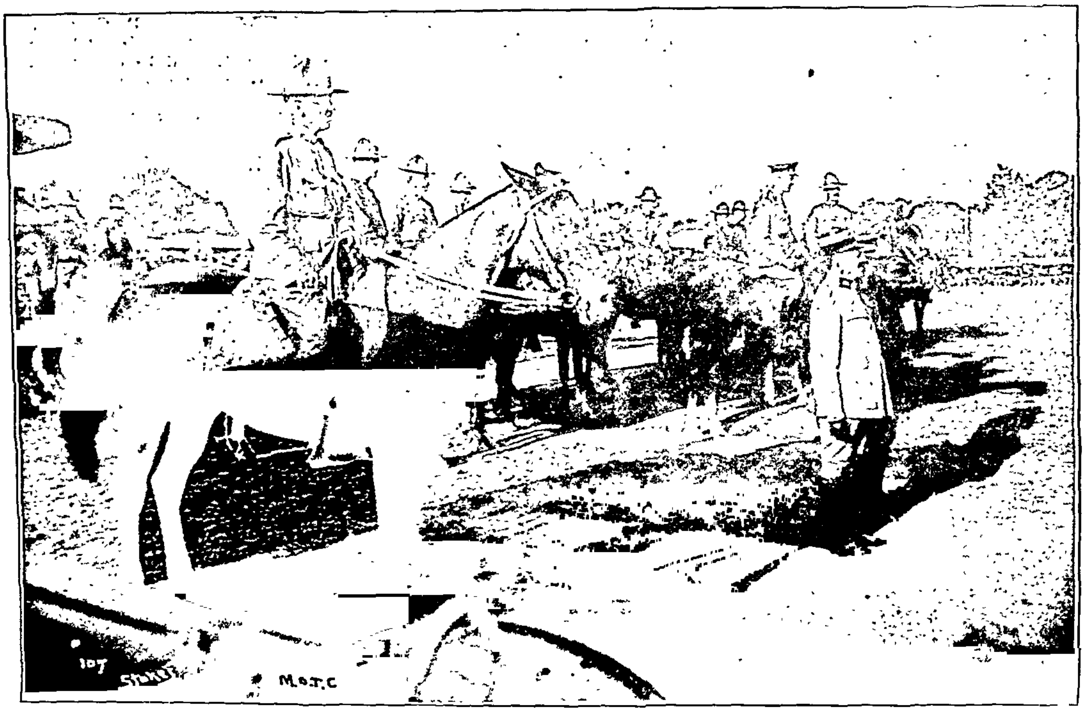
To Washington, D. C., with the division of ophthalmology, section of surgery of the head, Major W. R. Parker, Dixon.

To Yaphank, N. Y., for duty, Capt. J. G. Frost, Chicago.

To inactive list of Medical Reserve Corps, from duty at Fort Sheridan, Ill., Lieut. Clyde D. Pence, Chicago.

To home, from duty at Camp MacArthur and return to the inactive list of the Medical Reserve Corps, Capt. Charles F. Sanborn, Chicago.

Honorably discharged on account of being physically disqualified for active service, Capt. Homer H. Thomas, Chicago.



Review at Fort Oglethorpe: In the foreground at the left is Col. Henry Page, commandant of the Medical Officers' Training Camp, Fort Oglethorpe; in the center, Col. T. C. Goodwin, R. A. M. C.; standing, in the light uniform, Col. Charles Dircle, French Army Medical Corps; and Colonel La Garde, M.C., U. S. Army, ret.

INDIANA

To Camp Beauregard, Alexandria, La., from Fort Oglethorpe, 39th Division, for duty, Lieut. David B. Davis, Thorntown.

To Camp Funston, from Medical Officers Training Camp, Fort Riley, for duty, Capt. George W. Newell, Peru; Lieuts. Frederick S. Deem, Solsberry; T. P. Caplinger, Wallace.

To Camp Grant, Rockford, Ill., for duty, Capt. Daniel A. Campbell, Boonville; Lieuts. Walter W. Wright, Edinburg; Hubert P. Butts, Pierceville.

To Camp Logan, Tex., for duty, Lieut. W. D. Calvin, Ft. Wayne.

To Camp Mille, Garden City, N. Y., with the field laboratory 42d Division, Capt. H. C. Knapp, Huntingburg.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Lieuts. Samuel R. Laubscher, Evansville; Edgar N. Mendenhall, Fort Wayne; Claude H. White, Monrovia.

To Fairfield, O., for duty, Lieut. E. D. Jewett, St. Paul.

To Fort Benjamin Harrison with Base Hospital No. 32, Lieuts. E. Funkhouser, Indianapolis; for duty, L. T. Cox, Napoleon.

To Fort Oglethorpe for instruction, Lieuts. Brose S. Horne, Gas City; Harry G. Erwin, Huntertown; Bernard J. Larkin, Indianapolis; John E. Kelly, National Military Home; John G. Ross, Portland; Melcherd H. Kutch, Terre Haute.

To Fort Ontario, N. Y., duty with Field Hospital and Ambulance Cos., Nos. 28 and 30, Lieut. A. E. Mozingo, Tipton.

To Fort Riley, for duty, Lieut. Walter F. Hickman, Indianapolis.

To Newark, N. J., for duty, Lieut. G. Williams, Crawfordsville.

IOWA

To Camp Bowie, Fort Worth, Tex., from Fort Riley, and report to commanding general 36th Division, for duty, Capt. George G. Skinner, Cedar Rapids; Lieuts. Clifford L. Bartlett, Clinton; Harry L. Bridgman, Columbia; John R. Christensen, Eagle Grove; William F. Brown, Keokuk; J. Willard Caldwell, Steamboat Rock.

To Camp Cody, Deming, N. M., from Ft. Riley, for duty, Lieut. Paul F. Guernsey, Bloomfield.

To Camp Dodge, Des Moines, Ia., for duty as Chief of the Surgical Service, Major Charles E. Ruth, Des Moines.

To Camp Funston, from Medical Officers' Training Camp, Fort Riley, for duty, Capts. Arthur A. Pace, Toledo; Fordyce H. McCabe, Wellman; for duty, Lieut. Clarence H. Kinneman, Keokuk.

To Camp Grant, Rockford, Ill., for duty, from Fort Benjamin Harrison, Lieut. Aaron C. Conaway, Marshalltown.

To Camp Greenleaf, Fort Oglethorpe, Ga., for duty, Lieut. A. E. Acker, Ft. Dodge.

To Fort Dodge, Des Moines, Ia., 188th Division, for duty as member of board of medical officers for examination for tuberculosis, Capt. John H. Peck, Des Moines.

To Fort Leavenworth, Kan., for duty, Lieut. C. C. Cady, Harris.

To Fort Oglethorpe for instruction, Lieuts. Harry C. Nichols, Carson; Ira J. Gibson, Fontanelli; Thomas R. Gittens, Iowa City.

To Rockefeller Institute, New York, N. Y., for instruction in laboratory work, Capt. Guthrie McConnell, Waterloo.

To St. Elizabeth Hospital, Washington, D. C., from Phipps Clinic, Baltimore, Md., for course of study in his specialty, Capt. Richard G. Eaton, Cherokee.

To Washington, D. C., Aviation Section, Signal Corps, United States Army for duty, Capt. Eugene R. Lewis, Dubuque.

KANSAS

To Camp Beauregard, Alexandria, La., from Camp Lewis, American Lake, Wash., Lieut. Charles W. Cole, Norton.

To Camp Bowie, Fort Worth, Tex., from Ft. Riley and report to commanding general 36th Division for duty, Lieut. Robert E. Eagan, Spring Hill.

To Camp Funston, from Medical Officers' Training Camp, Fort Riley, for duty, Lieuts. Milton O. Nyberg, Ashland; Frederick R. Hickey, Chanute; Tarlton A. Hood, Garnett; John E. Hammer, Hardtner; Walter N. Mundell, Hutchinson; Fred E. Harvey, Minneapolis; Hugh B. Hawthorne, Palmer; Charles S. Adams, St. John; Henry S. Dreher, Waldo; Walton I. Mitchell, George K. Purves, Wichita.

To Camp Greene, Charlotte, N. C., from Fort Oglethorpe, for duty as member of board of medical officers for examination for tuberculosis, Lieut. Jacob H. Haldeman, Paola.

To Camp Lewis, American Lake, Wash., for duty, Lieut. Rinaldo E. Baker, Belle Plain.

To Camp Pike, Little Rock, Ark., for duty with Ambulance Company No. 44, Lieut. A. M. Dawson, Topeka.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison for duty in connection with sanitary train work, Lieut. Clyde M. Zink, Wellington.

To Fort Des Moines, Ia., for instruction, Lieut. Frank O'H. Miller, Wichita.

To Fort Leavenworth, for duty, Lieut. F. D. Kennedy, Norton.

To Fort Logan, Colo., with 1st Colo. Inf. Lieut. E. G. Brown, Topeka.

To Fort Oglethorpe for instruction, Capt. John F. Rudolph, Belle Plaine.

To Fort Riley for duty, Lieut. John D. Riddell, Salina.

KENTUCKY

To Camp Grant, Rockford, Ill., for duty, from Fort Benjamin Harrison, Lieut. George E. Aubrey, Kevil.

To Camp Hancock, Augusta, Ga., for duty, Lieut. S. G. Smith, Greenup.

To Camp Meade, Md., for duty, Lieut. S. Keffer, Ashland.

To Camp Shelby, Miss., for duty, Capt. J. Hancock, Louisville.

To Fort Des Moines, Ia., for instruction, Lieuts. Patterson T. Frazer, Jr., Cadiz; Walter S. Adams, Robert L. Oliver, Louisville; Royal W. Grubbs, Paducah.

To Fort Oglethorpe for instruction, Capt. Horace Luten, Fulton; Lieuts. Mark D. Gundrum, Covington; John R. Shacklette, Jeffersontown; Hubett R. John, Lamar W. Neblett, Harry L. Pelle, Louis C. Rudell, Louisville; Timothy T. Gibson, Middleboro, Millard D. Hoskins, Varilla.

To Fort Ontario, N. Y., duty with Field Hospital and Ambulance Cos., Nos. 28 and 30, Lieut. S. H. Martin, Covington.

To Macon, Ga., 31st Division, National Guard, Capt. E. Rau, Bowling Green.

To Rockefeller Institute, New York, N. Y., for instruction, Major Arthur T. McCormack, Bowling Green.

To his home and return to the inactive list of the Medical Reserve Corps, Lieut. Arthur C. Henthorn, Garrison.

LOUISIANA

To Atlanta, Ga., for duty, Capt. C. P. Brown, New Orleans.

To Camp Beauregard, Alexandria, Ia., for duty as chief of the medical service, Majors J. B. Guthrie, New Orleans, with 39th Division, for duty as a member of tuberculosis examining board, Whyte G. Owen, White Castle.

To Fort Des Moines, Ia., for instruction, Lieut. Jamison C. Mills, Shreveport.

To Fort Oglethorpe for instruction, Capt. James C. Burdett, Pelican.

MAINE

To Boston, Mass., for duty with 26th Division, Lieut. F. L. Gregory, Caribou.

To Camp Devens, Ayer, Mass., for duty as orthopedic surgeon, Major W. C. Peters, Bangor.

To Camp Grant, Rockford, Ill., for duty from Fort Benjamin Harrison, Capt. Philip W. Davis, Portland; Lieut. Ralph W. Wakefield, Bar Harbour.

To Fort Logan, Ark., for duty, Lieut. A. Woodcock, Bangor.

To Fort Monroe, Va., for duty, Lieut. Herbert L. Williams, Auburn.

To Portland, Me., physical examining unit, Av. Sec. S. R. C., Lieut. C. D. Gray, Portland.

To Walter Reed General Hospital, Washington, D. C., from Boston, Mass., for instruction in tuberculosis examinations, Capt. Nelson E. Nichols, Portland.

MARYLAND

To Camp Meade, Annapolis Jct., Md., for duty, Capt. Charles H. Conley, Frederic; Lieut. A. W. Reier, Baltimore.

To Deming, N. M. Camp Cody, as assistant to the care of cardiovascular cases, Capt. H. R. Carter, Baltimore.

To Fort Oglethorpe for instruction, Lieuts. W. W. Anderson, Everett LeC. Cook, Baltimore; George W. Bishop, Govans.

To Fort Riley for duty, Capt. Albert W. Metcalf, Jr., Fort Washington.

To Neurological School, University of Pennsylvania, Philadelphia, for four weeks on intensive training in brain surgery, Major F. Martin, Baltimore.

To New York, N. Y. Rockefeller Institute, Major G. A. Stewart, Baltimore.

To St. Elizabeth Hospital, Washington, D. C., for a course of study in his specialty, Capt. Daniel D. V. Stuart, Jr., Baltimore.

To return to inactive list of Medical Reserve Corps from School of Roentgenology, Johns Hopkins Hospital, Baltimore, Lieut. John Evans, Baltimore.

Honorably discharged, Lieut. Harry H. Johnson, Baltimore.

MASSACHUSETTS

To Camp Devens, Ayer, Mass., for duty as chief of the medical service, Major Joseph H. Pratt, for duty as Adjutant of the Base Hospital, Capt. Arthur H. Crosbie, for duty as assistant to the Chief of the Surgical Service, Lieut. John J. Stack, Boston.

To Camp Grant, Rockford, Ill., for duty from Fort Benjamin Harrison, Capt. William E. Hamlin, Waltham; Lieuts. Clarence E. Burt, New Bedford; Johnston L. Chereskin, Springfield.

To Camp Taylor, Louisville, Ky., *from Fort Benjamin Harrison,* for duty *in connection with sanitary train work,* Lieuts. *Charles J. Carden,* Haverhill; Edward S. Ward, *North Attleboro; William E. Denning,* Worcester.

To Fort Leavenworth for the purpose of making examinations *in* his specialty, Lieut. Ralph M. Chambers, Westboro.

To Fort Oglethorpe for instruction, Lieuts. William *F.* MacKnight, Fall River; Leighton P. Johnson, Norwood.

To Garden City, N. Y., with 42d Division, from Boston 26th Division, Lieut. W. E. Baxter, Topsfield.

To Fort Oglethorpe for instruction, Lieut. Irving W. Fraim, Waltham.

To Fort Ontario, N. Y., for duty with Field Hospital No. 28, Capt. Dana W. Drury, Boston.

To Neurological School, University of Pennsylvania, Philadelphia, for duty, Lieut. William F. Wood, Boston.

To report *in person* to Major Elijah H. Siter, M. R. C., 1818 S. Rittenhouse Square, Philadelphia, Pa., for examination to determine his physical qualifications for duty, Lieut. Walter D. Berry, South Weymouth.

Honorably discharged from duty at *Camp Devens, Ayer,* Mass., Capt. James H. Wright, Boston.

MICHIGAN

To Camp Custer, Mich., for duty, Lieuts. A. F. Jennings, Detroit; R. C. Main, Marquette.

To Camp Dodge, Des Moines, Ia., for duty, with Ambulance Co. No. 31, Lieut. A. V. Murtha, Flint.

To Camp Grant, Rockford, Ill., for duty, from Fort Benjamin Harrison, Capts. Willard H. Hutchings, Detroit; William W. Arscott, Rogers; Lieuts. Clarence A. Berge, Ann Arbor; George W. Peart, Burt; Launes I. Condit, Detroit; Raymond M. Schulte, Dollar Bay; George R. Goering, Flint; Louis E. Devendorf, Grandville; Robert H. Carmichael, Hamtramck; Henry A. Kling, Montague.

To Camp Greene, N. C., for duty, Lieut. W. A. DeFoe, Saginaw.

To Camp Lee, Va., for duty, Capt. D. E. MacPhail, Wakefield.

To Camp Sheridan, Ala., Capt. R. A. C. Wollenberg, Detroit.

To Camp Sherman, Chillicothe, O., for duty, Lieut. E. R. Scarboro, Ann Arbor.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison for duty in connection with sanitary train work, Lieuts. Edwin C. Hanzhorn, Ann Arbor; Lieut. Burns R. Eastman, Muskegon.

To Camp Wadsworth, Spartanburg, S. C., to duty in Sanitary Division, Lieut. John M. Carter, Detroit.

To Cornell Medical College, New York, N. Y., for instruction in military roentgenology, Lieut. Theodore Kolvoord, Battle Creek.

To Detroit, Mich., Base Hospital No. 36, for duty, Major H. G. Berry, Mt. Clemens; Capt. J. Sill, Onaway; Lieuts. G. P. Raynale, Birmingham; A. E. Harris, R. A. Shankwiler, E. Smith, Jr., Detroit; G. P. Sackrider, Owosso.

To Fort Oglethorpe, for instruction, Lieuts. Earl *R. Harris,* Detroit; Jesse O. Parker, Owosso.

To Fort Ontario, N. Y., for duty with Field Hospital and Ambulance Cos. Nos. 28 and 30, Lieuts. G. M. Lochner, Adrian; R. E. Dawson, Blanchard; R. H. Bookmyer, Detroit; R. R. McCrumb, Lansing.

To Fort Snelling, Minn., for duty, Lieut. O. M. Randall, Detroit.

To Garden City, N. Y., for duty, Lieut. C. F. Kuhn, Detroit.

To Spartanburg, S. C., 27th Division, N. G., Lieut. J. M. Carter, Detroit.

MINNESOTA

To Camp Bowie, Fort Worth, Tex., from Fort Riley, and report to commanding general 36th Division, for duty, Capt. Chester M. Clark, Duluth; Lieuts. John T. Rose, Lakefield; Harry E. Canfield, Willmar.

To Camp Cody, Deming, N. M., from Fort Riley, for duty, Lieut. Roderick F. McHugh, Coleraine.

To Camp Grant, Rockford, Ill., for duty, from Fort Benjamin Harrison, Lieut. Ward Akester, Marshall.

To Dallas, Tex., for duty, Lieut. J. C. Wilkinson, Red Lake Falls.

To Fort Oglethorpe, for instruction, Lieuts. Solomon F. Rudolf, Albert Lea; Jesse E. Douglass, Thief River Falls; as instructor in gas defense, B. V. Bates, Wheaton.

To Fort Snelling, Minn., for duty, Capt. J. A. Hielscher, Mankato; Lieuts. T. F. Rodwell, White Earth; E. H. Lutz, St. Paul.

MISSISSIPPI

To Camp Shelby, Miss., for duty, Capt. J. R. Tackett, Meridian.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Lieut. Roy C. Elmore, Durant.

To Fort Des Moines, Iowa, for instruction, Lieut. David Rodgers, Laurel.

To Hattiesburg, Miss., Camp Shelby with the division of oro-laryngology section of surgery of the head, Lieut. M. I. Brewer, Jackson.

To Jefferson Barracks, Mo., for duty, Lieut. W. G. White, Lewistown.

Par. 116, Special Orders No. 200, War Dept., Aug. 27, 191, as relates to Capt. Ewing F. Howard, are to be modified so as to direct him to proceed to Camp Logan, Houston, Tex.

Honorably discharged, Capt. James V. May, Port Gibson; Lieut. Arthur G. Trotter, Greenwood.

MISSOURI

To Battle Creek, Mich., for duty, Capt. J. T Cook, St. Louis.

To Camp Bowie, Fort Worth, Tex., from Fort Riley, and report to commanding general 36th Division, for duty, Capts. Isaac W. Powell, Holcomb; Waldemar Ude, St. Louis; Lieuts. William F. Culbertson, Kansas City; Joseph T. Axline, St. Louis.

To Camp Doniphan, Fort Sill, Okla., for instruction in gas defense, Lieut. Ray Mercer, Canton.

To Camp Funston, for duty, from Medical Officers' Training Camp, Fort Riley, Capts. Edward H. Clark, Kansas City; Olive S. McGinnis, Sedalia; Walter F. Fry, St. Louis; Lieuts. Paul R. Williams, Cape Girardeau; William L. Hoagland, John Wilson, Kansas City; Hilen K. Wallace, St. Joseph; Edward E. Heiple, St. Louis; Otto N. Schudde, Sullivan; for duty with base hospital laboratory, from Army Medical School, Lieuts. Edwin H. Schorer, for duty with Red Cross Ambulance Co. No. 24, Elmer J. Billick, Kansas City.

To Camp Mills, Garden City, N. Y., for duty with Colorado Field Hospital No. 4, Capt. A. J. Campbell, Sedalia.

To Fort Benjamin Harrison, for instruction in tuberculosis examinations, Lieut. Robert E. Byrns, Koch.

To Fort Des Moines, Ia., for instruction, Lieuts. George W. Hedgepeth, Kansas City; Charles E. Herriott, St. Louis.

To Fort Oglethorpe, for instruction, Lieuts. James E. James, Robert E. Owen, St. Louis; George D. Wells, Strafford; William S. Culpepper, Willow Springs.

To Fort Snelling, Minn., for duty, Capt. R. Burns, Jr., St. Louis.

To Kansas City, Mo., with 2d Missouri Field Artillery, Capt. C. E. Wilson, Kansas City.

To Rantoul, Ill., Aviation Section, Lieut. J. James, St. Louis

To Waco, Tex., Camp MacArthur, for duty, Lieut. Stanley S. Burns, St. Louis.

To Home, and the inactive list of the Medical Reserve Corps, Lieut. Clarence Cardwell, Stella

MONTANA

To Camp Lewis, American Lake, Wash., for duty, Major LeR. Southmayd, Great Falls.

To Fort Oglethorpe, for instruction Lieut. Donald K. Woods, Great Falls.

To Fort Snelling, Minn., for duty, Capt. E. Martin Larson, Great Falls.

NEBRASKA

To Camp Bowie, Fort Worth, Tex., from Fort Riley, and report to commanding general 36th Division, for duty, Lieuts. Abel B. George, Beatrice; William H. Crawford, Rushville.

To Camp Funston, from Medical Officers' Training Camp, Fort Riley, for duty, Capt. John Buis, Pender; Lieuts. Edgar Cline, Auburn; William O. Akers, Omaha; Charles P. Brenn, Western.

To Camp Wadsworth, Spartanburg, S. C., from Walter Reed General Hospital, Tacoma Park, D. C., for duty as member of the tuberculosis examining board, Lieut. William N. Anderson, Omaha.

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Lieut. John F. Allen, Omaha.

To Rockefeller Institute, New York, N. Y, for duty, Capt. Judd A. Strong, Kearney; for duty in connection with infectious diseases, at Camp Mills, Lieut. Edward H. McLean, Omaha.

NEW HAMPSHIRE

To Boston, Mass., for instruction in military roentgenology, Lieut. Wallis D. Walker, Portsmouth.

To Fort Benjamin Harrison, as instructor in gas defense, Lieut. J. A. Drew, Rumney.

To Fort Oglethorpe, Ga., for instruction, Lieut. Ralph A. Richardson, Franklin.

To home, and inactive list of the M. R. C., Lieut. Clarence E. Dunbar, Manchester.

NEW JERSEY

To Camp Cody, Deming, N. M., from Fort Riley, for duty, Lieut. Charles S. Brady, Union Hill.

To Camp Dix, Wrightstown, N. J., Lieut. H. E. Dwyer, Passaic.

To Camp Doniphan, 35th Division, for duty, Lieut. H. C. Woolley, Pitman.

To Camp Grant, Rockford, Ill., Lieut. Max H. Stern, Jersey City, N. J.

To Camp Taylor, Louisville, Ky., Lieut. Samuel E. Weiner, Atlantic City, for duty in connection with sanitary train work.

To Camp Wheeler, Ga., for duty, Capt. A. N. Jacob, Sparta.

To Cornell Medical College, New York, for instruction in military roentgenology, Lieut. Irving S. Ingeber, Secaucus, N. J.

To Fort Hamilton, N Y., for duty, Lieut. Francis K. MacMurrough, Jersey City.

To Fort Oglethorpe, Ga., Lieut. P. Du B. Bunting, Elizabeth, as instructor in gas defense; for instruction, Lieuts. Virgil H. Cornell, Cedar Grove; Percy E. Deckard, Jersey City; Charles H. Conover, Tuckerton, and Frederic H. Thorne, Greystone Park.

To Newark, for duty, Capt. J. MacDonald, Jr., East Orange.

To New York, N. Y., U S. Army General Hospital No 1, for duty, Lieut. Raymond C. Dodd, Glen Ridge

To Rockford, Ill. Camp Grant, from Salem, N. J., with 86th Division, Capt. C. E. MacDonald, Salem.

To Salem, N. J., for duty, Lieut. J. M Dix, Cape May.

NEW YORK

To Army Medical School, Lieut. C. B. Reed, New York City; for duty in the bacteriologic laboratory, Lieut. James C. Barker, New York City.

To Atlanta, Ga., and report to commanding officer, department laboratory, for duty, Lieut. Joseph W. Smith, Jr., Brooklyn.

To Camp Cody, N. M., for duty, Capt. L. S. Shoninger, New York City.

To Camp Dix, Wrightstown, N. J., from Camp Mills, Garden City, L. I., for duty as tuberculosis specialist and assistant to the Army Medical Staff, Capt. William J. Hammer, New York City; for duty with Red Cross Ambulance Company No. 34, Lieut. Albert T. Murphy, New York City.

To Camp Gordon, 22d Division National Guard, for duty, Lieut. C. G. Giddings, New York City.

To Camp Grant, Rockford, Ill., for duty, from Fort Benjamin Harrison, Lieuts. Percy H. Finch, Broadalbin; Mortimer H. Linden, Brooklyn; Edward J. Abbott, Fonda; Joseph Leo and Charles A. White, New York City.

To Camp Greene, Charlotte, N. C., 41st Division, to examine for tuberculosis, Lieut. H. Elwyn, New York City.

To Camp Hancock, Augusta, Ga., for duty as chief of the medical service, Major F. J. Barrett, New York City; for duty, Lieut. W. L. Weeden, Clifton Springs.

To Camp McClellan, Ala., for duty, Lieut. E. L. Herget, Brooklyn.

To Camp Meade, Annapolis Junction, Md., 79th Division, for duty, Capt. H. V. DeV. Cornwell, New York City.

To Camp Mills, Garden City, L. I., for the purpose of making examination in his specialty, after completion to return to the inactive list of the Medical Reserve Corps, Capt. John F. W. Meagher, Brooklyn; for duty, Capt. M. J. Karpas and Lieut. Leiser Grimberg, New York City.

To Camp Sevier, Greenville, S. C., and report in person to the commanding general of the camp and to the commanding officer of the base hospital, for duty, Lieut. George F. Gracey, New York City.

To Camp Sherman, Chillicothe, Ohio, with Field Hospital, Major P. Van Ingen, New York City.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Capt. Waldo H. Sanford, New York City; Lieuts. Hubert E. Chauvin, Brentwood; Victor A. Tyraskinki, Buffalo; Lowrie W. Blake, Meyer M. Eckert, Joel Grosner, Asa L. Lincoln and Alfred A. Schwartz, New York City; Loyd W. Ballantyne and John J. Corbett, Syracuse; and Harrison Betts, Yonkers.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. A. A. Mendez, Brooklyn; and report to commanding general, 27th Division, Lieut. Edward N. Packard, Saranac Lake.

To Chickamauga, Ga., from duty at Camp Upton, for duty as assistant to the division surgeon, Major Richard Derby, New York City.

To Cornell Medical College, New York City, for a course of instruction in military roentgenology, Capt. Arthur J. Bendick, New York City; for duty as instructor in military roentgenology, Capt. Leopold Jaches, New York City.

To Fairfield, Ohio, for duty, Lieut. G. M. Clowe, Schenectady.

To Fort Ethan Allen, Va., for duty, Capt. J. D. Gulick, Schenectady.

To Fort McPherson, Ga., for duty as chief of the medical service, Lieut. Charles N. B. Camac, New York City.

To Fort Monroe, Va., for duty, Lieut. Edward D. Fraser, Brooklyn.

To Fort Niagara, N. Y., for the purpose of making examinations of the student officers in his specialty, on completion return to present station, Plattsburgh Barracks, N. Y., Major M. S. Gregory, New York City.

To Fort Oglethorpe, for instruction, from United States Army General Hospital No. 1, New York City, Capt. Leo B. Meyer, New York City; from Walter Reed General Hospital, Takoma Park, D. C., Capt. Joseph Muir, New York City; for instruction, Capt. John R. Bradley, Rochester; Lieuts. Ernest L. Wilson, Bolton Landing; Herbert S. DuCret, Carl Kaplan, James F. X. Looram, Benjamin C. Russum and James E. Weatherford, Brooklyn; Harold W. Culbertson, Buffalo;

Theron B. Bond, Cuba; Cyril Barnert, Ralph L. Cudlipp, Beeckman J. Delatour, Henry R. Kutil, and William A. Somerville, New York City; from Camp Upton, L. I., Lieut. Thomas R. Barry, Ossing; from Syracuse, N. Y., Lieut. Reginald Ducat, New Rochelle.

To Fort Ontario, N Y., for duty with Field Hospital and Ambulance Companies Nos. 28 and 30, Capt. D. C. Wiggin, Staten Island, and Lieut. T. G. Tousey, Rochester.

To Fort Sheridan, Ill., from Fort Benjamin Harrison Recruit Depot at Columbus Barracks, Ohio, *for making a medical survey of the troops in his specialty, and on completion of this duty to return to the* inactive list of the M. R. C., Major Joseph Collins, *New York City.*

To Fort Slocum, N. Y., for duty, Capt. William H. Luckett, New York City; Lieut. J. L. Hemstead, Albany; for duty, from Fort Michie, N. Y., Lieut. Abraham Ginsburg, *New York City.*

To Garden City, L. I., for duty, Capt. C. S. Cole, New York City; Lieuts. W. G. Berlucci, Brooklyn; P. J. Barone, Buffalo; A. P. Dellett *and W. H. Ordway, New York City.*

To Neurological School, University of Pennsylvania, Philadelphia, *for* four weeks of intensive training in brain surgery, Lieut. F. J. Garlick, Rochester.

To New York, N. Y., U. S. Army General Hospital No. 1, for duty, Capt. James W. Decker, New York City; and report in person to the commanding officer, Lieut. Edwin G. Ramsdell, White Plains.

To Rockefeller Institute, New York City, from Army Medical School, *for duty in connection with infectious diseases at Camp Mills*, Lieut. Raymond Sanderson, Poughkeepsie.

To U. S. Army General Hospital No. 1, Williams Bridge, N. Y., for duty with Base Hospital No. 3, Lieut. E. Bleier, New York City.

To Vicksburg, Miss., from Fort Oglethorpe, for duty as sanitary inspector of the national military reunion, Major John T. Sprague, St. George.

To Walter Reed General Hospital, Takoma Park, *D. C., for instruc*tion in tuberculosis examinatons, Lieut. Ephraim Goldman, New York City.

To Washington, D. C., for duty in Surgeon-General's office, Major Raymond P. Sullivan, Brooklyn; for duty with the venereal disease section, division of infectious diseases, from Port Benjamin Harrison, Major Edward L. Keyes, *Forest Hills*; in connection with the organiza*tion of a mobile surgical unit*, Capt. Percy R. Turnure, New York City; as surgeon-in-chief of the special fracture hospital about to be organized, Capt. J. B. Walker, New York City.

To Wrightstown, N. J., for duty, Lieut. T. A. Smith, New York City.

To Yaphank, N. Y., 77th Division, in charge of ophthalmia division, section of surgery of the head, Capt. F. G. Ritchie, New York City.

Honorably discharged, Lieut. Donald E. McKenna, *Brooklyn.*

Honorably discharged (on account of his inaptitude for the service), Lieut. E. Cochrane, Valatie.

To return to the inactive list of the Medical Reserve Corps, from Fort Riley, Lieut. Daniel J. Hoyt, New York City.

NORTH CAROLINA

To Army Medical School, for duty in the bacteriologic laboratory, Lieut. *Hickman Ray, Rocky* Mount.

To Camp Greenleaf, Fort Oglethorpe, Ga., for duty, Lieut. N. B. Adams, Murphy.

To Chickamauga Park, Ga., for duty with Field Hospital Section, Sanitary Train, Lieuts. H. Webb, Chapel Hill; for duty with Ambulance Section, Sanitary Corps, Newton G. Wilson, Summerfield.

To Detroit, Mich., *for duty with* Base Hospital *No. 36*, Lieut. A. J. Warren, Hillsboro.

To Fort Des Moines, Ia., for instruction, Lieut. Thomas W. Haywood, Raleigh.

To Fort Oglethorpe, for instruction, Major A. G. Brenizer, Jr., Charlotte; Capt. Sylvester D. Craig, Winston-Salem; Lieuts. Frank Lowe Mock, Lexington; Leaman Baggett, Taylor.

Letter of Sept. 11, *1917 (No. 3733)*, be modified so as to relieve Lieut. *Percival* R. Bennett, Bryson City, from duty at the Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, *Ga.*, and *to* proceed to his home.

NORTH DAKOTA

To Camp Cody, Deming, N. M., 34th Division, for duty, from Fort Riley, Lieut. Wayne *P. O'Brien*, Egeland.

To Camp Funston, *from* Medical Officers' Training Camp, Fort Riley, for duty, Lieuts. Judd H. Kirkham, Langdon; William Ginsberg, Omemee.

To Camp Hancock, Augusta, Ga., *division of ophthalmology*, section of surgery of the head, Lieut. S. G. Larrabee, Mandan.

OHIO

To Belleville, Ill., Signal Corps, Aviation School, Lieut. C. O. Bayless, Dayton.

To Boston, Mass., for a course of *instruction in* orthopedic work, and on completion of this course *to proceed* to Post-Graduate Hospital, New York, N. Y., Lieuts. Alvah S. McClain, Lakewood; George B. Booth, Toledo.

To Camp Custer, Mich., for duty, Capt. D. Marine, Cleveland.

To Camp Funston, from Medical Officers' Training Camp, Fort Riley, for duty, Capt. William F. Dager, Lorain.

To Camp Grant, Rockford, Ill., *for duty*, from Fort Benjamin Harrison, Capts. *Frank J. Owry*, Cincinnati; Henry M. Osborne, Youngstown; Lieuts. William H. Ambrose, New Petersburg; *Kromer* C. Ice, Shreve.

To Camp Sevier, S. C., *for* duty, Lieut. E. R. Shaffer, Columbus.

To Camp Sheridan, Montgomery, Ala., with 10th Regiment, Ohio National Guard, Lieut. W. H. Keenan, Coshocton.

To Camp Sherman, Chillicothe, *Ohio, for duty* in the division of otolaryngology, section of the head, Lieut. C. H. Weintz, Cincinnati.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Capts. Orr A. Dickson, Jefferson; James B. Dougherty, New Berlin; Lieuts. William O. Phillips, Centerburg; Samuel D. Edelman, Columbus; Charles H. Bailey, East *Liverpool; Ralph B.* Tate, *Harrison*; Julius R. Bolles, Holgate; Jacob M. Heyde, Loudonville; Wayne P. Mecklem, Mansfield.

To Camp Travis, Fort Sam Houston, Tex., from Fort Benjamin Harrison, for duty, Lieut. Henry A. Schlink, Cleveland.

To Camp Wadsworth, Spartanburg, S. C., for duty in connection with the division of ophthalmology, section of surgery of the head, Lieut. William M. Hinkle, Degraff.

To Camp Wheeler, Macon, Ga., *for duty*, Capt. A. M. Painter, Youngstown.

To Fort Benjamin Harrison, for instruction, Lieut. Burt A. Marquard, Dover.

To Fort Meyer, Va., for duty with the 12th Field Artillery, Lieut. Harry R. Carroll, Cincinnati.

To Fort Oglethorpe, for instruction, Lieuts. Sidney C. Venable, Cleveland; Milton J. Longsworth, Lima; Ralph H. Zemer, Mt. Vernon; Isaac P. Seiler, Piketon; Vernon W. LeMaster, Sidney; Howard W. Williamson, Toledo; Nolan E. Leake, Van Wert.

To Hattiesburg, Miss., Camp Shelby, *38th Division*, as member of a board for special tuberculosis examination, Lieut. C. Mulky, Warrensville.

To St. Elizabeth Hospital, Washington, D. C., for a course of study in their specialty, Capt. William A. Searl, Cuyahoga; Lieut. James A. Belyea, Toledo.

To Walter Reed General Hospital, Washington, *D. C.*, for instruction in tuberculosis examining, Lieut. William H. Horr, Cleveland.

To Washington, D C., for duty, Capt. R. R. Morrall, Youngstown.

Par. 9, Special Orders No. 186, War Dept., Aug. 11, 1917, as relates to Lieut. Benjamin H. Gillespie, Akron, be modified so as *to* direct him to Fort Oglethorpe for instruction.

To home, from duty at Allentown, Pa., and to the inactive list of the M. R. C., Lieut. Gratian P. Whitwham, Toledo.

OKLAHOMA

To Camp Bowie, Fort Worth, Tex., from Fort Riley, and report to commanding general, 36th Division, for duty, Lieuts. Clarence R. McDonald, Broken Bow; John W. Adams, Chandler.

To Camp Doniphan, Okla., for duty, Lieut. B. T. Bitting, Enid.

To Camp MacArthur, Waco, Tex., for duty, Lieut. William G. Husband, Gould.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Lieut. Edgar A. Johnson, Hugo.

To Cornell Medical College, New York, N. Y., for instruction in military roentgenology, Lieuts. John E. Heatley, *Carmen; Marion M. Roland, Oklahoma City.*

To Fort Des Moines, Ia., for instruction, Lieuts. Robert W. Motley, Muskogee; Jackson Smitherman, Tulsa.

To Fort Oglethorpe, for instruction, *Lieuts. George A. Akers, Ada*; Thomas M. Boyd, Norman; William O. Baird, Oak Hill; Lee R. Wilhite, Oklahoma; James A. Rutledge, Woodville.

To Fort Sill, Okla., for duty, Lieuts. Charles G. Sims, Healton; L. A. Milne, Lawton.

Letter, Sept. 18, 1917 (4251), as relates to Major Fred H. Clark, El Reno, is revoked.

OREGON

To Camp Lewis, American Lake, Wash., to report in person to commanding general for duty, Lieuts. Frank R. Mount, Oregon City; for duty as assistant to division surgeon, J. G. Strohm, Portland.

To Fort Oglethorpe, for instruction, Lieuts. Leonard H. Vincent, Merlin; William C. Munly, *Portland.*

PENNSYLVANIA

To Annapolis Junction, Md., for duty, Lieuts. I. H. Shelly, Ambler, and Jackson S. Lawrence, Philadelphia.

To Anniston, Ala., 29th Division, as member of a board for special *examination of troops for tuberculosis*, Lieut. H. O. Mateer, Pittsburgh.

To Buffalo, N. Y., and Toronto, Canada, investigation and report on the manufacture of artificial limbs, and *on completion of this duty to return to his proper station, Major* David Silver, Pittsburgh.

To Camp Cody, Deming, N. M., 34th Division, for duty, Lieut. William J. Balley, Connellsville.

To Camp Dix, Wrightstown, N. J., 78th Division, for duty as *assistant* to the division surgeon, Major George M. Piersol, *Philadelphia; for* duty in the cantonment laboratory, Lieut. Charles W. Luders, Cynwyd; from Fort Slocum, N. Y., *for duty, Lieut.* John A. Roddy, Jr., Philadelphia.

To Camp Funston, Fort Riley, Kan., from Walter Reed General Hospital, Tacoma Park, D. C., for duty as tuberculosis *specialist and* assistant to the Army Medical Staff, Lieut. Richard Bew, Gettysburg.

To Camp Grant, Rockford, Ill., for duty, *from* Fort Benjamin Harrison, Capt. Lewis R. Tryon, Centerport, and Lieut. Edgar H. Fought, Philadelphia.

To Camp Greene, Charlotte, N. C., from Fort Oglethorpe, for duty as member of board of medical officers for examination for *tuberculosis*, Lieut. James M. McNall, Wilkinsburg.

To Camp Jackson, Columbia, S. C., *for* duty, Lieuts. E. T. Davies, Old Forge; W. Van Korb, Philadelphia; and P. H. Gerhardt, Reading.

To Camp Pike, Little Rock, Ark., *87th Division*, from Fort *Oglethorpe*, for duty as assistant to the division surgeon, Lieut. *Russell R.* Jones, Lansford.

To Camp Sevier, Greenville, *S. C.*, *and* report in person to the commanding general of the camp and the commanding officer of the base hospital for duty, Major G. M. Coates, Philadelphia, Pa.; *from* Walter Reed General Hospital, Tacoma Park, D. C., *for* duty as a member of the tuberculosis examining board, Lieut. *Norman* R. Graham, Sharksburg.

To Camp Sherman, Chillicothe, Ohio, 63d Division, as tuberculosis specialist and assistant to the Army Medical Staff, Capt. S. M. Rinehart, Pittsburg; 83d Division, for duty, Lieut. L. F. Wilson, New Kensington.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Capt. Joseph D. Farrar, Philadelphia.

To Camp Wadsworth, S. C., in charge of the division of otolaryngology, section of surgery of the head, Lieut. W. P. Barndollar, Pittsburgh.

To Chickamauga Park, Ga., for duty with headquarters Military Police, from Fort Oglethorpe, Lieut. Hugh M. Shannon, Philadelphia.

To Fort Des Moines, Ia., for instruction, Lieut. Preston M. Edwards, Philadelphia.

To Fort McPherson, Ga., from Camp Jackson, S. C., for duty as Chief of the Surgical Service, Capt. William W. Babcock, Philadelphia.

To Fort Oglethorpe for instruction, Capt. David Dale, Bellefonte; Lieuts. John E Struthers, Danville; Marshall G. Rumbaugh, Kingston; Samuel B. Lyons, Pittsburgh; Alfred L. Rhoads, Scranton; Francis E. Donnelly, Wilkes-Barre; as instructor in gas defense, Lieut. G. Smith, York.

To Fort Thomas, Ky., for duty, Lieut. E. L. Dickey, Oil City.

To Greenville, S. C., for duty as assistant in the care of cardiovascular cases, Lieut. Truman S. Schnabel, Philadelphia.

To Middletown, Pa., from Fort Oglethorpe, 113th Aero Supply Squadron, Lieut. William P. McIntosch, Philadelphia.

To New York, N. Y., U. S. Army General Hospital No. 1, for duty, Lieut. J. J. Caffrey, Philadelphia; with the additional personnel of Base Hospital No. 2, Lieut. T. W. Cook, Osterburg.

To Philadelphia, Pa., for the purpose of compiling a hand book in ophthalmology, and on completion of this duty to proceed to Washington, D. C., for duty in the division of ophthalmology, section of surgery of the head, Major George E. de Schweinitz, Philadelphia.

To St. Elizabeth's Hospital, Washington, D. C., for a course in intruction in his specialty, Lieut. Emory L. Dravo, Warren; from Fort Ethan Allen, Vermont, for a course of study in his specialty, Lieut. E. Leslie, Pittsburgh.

To Syracuse, N. Y., Reorganization Camp, from Camp Robinson, Sparta, Wis., for the purpose of examining troops in his specialty, Lieut. Ralph L. Hill, Woodville.

To Washington, D. C., for duty, Major C. A. E. Codman, Philadelphia.

To Wrightstown, N. J., for duty, 78th Div., Lieut. C. A. O'Reilly, Philadelphia.

To Yaphank, N. Y., 77th Div., N. G., for duty, Lieut. J. F. Herbert, Philadelphia.

Par. 260, Special Orders No. 203, War Dept., Aug. 31, 1917, be modified to read for duty at the Base Hospital, Fort Oglethorpe, Lieut. Joseph M. Kenworthy, Philadelphia.

To his home from duty at Fort Niagara, N. Y., and return to the inactive list of the Medical Reserve Corps, Lieut. Augustus A. Eshner, Philadelphia.

To his home from Camp Meade, Md., on account of being physically disqualified for active service, Lieut. Clarence W. Judd, Philadelphia.

PORTO RICO

To Fort Oglethorpe, for instruction, Lieut. William R. Balbreath, San Juan.

RHODE ISLAND

To Camp Beauregard, La., for duty, Capt. R. S. Wilcox, Providence.

To Camp Kearny, Calif., for duty, Lieut. C. R. Doten, Providence.

To home, from duty at Fort Benjamin Harrison, on account of being physically disqualified, Lieut. Michael H. Scanlon, Westerly.

SOUTH CAROLINA

To Camp Greene, Charlotte, N. C., 41st Div., National Guard, in connection with venereal diseases, Lieut. C. F. Ross, Anderson.

To Camp Greenleaf, Fort Oglethorpe, Ga., for duty, Lieut. A. T. Baird, Darlington.

To Camp Jackson, Columbia, S. C., for duty, Lieuts. E. W. Barron, Manning; J. H. Pratt, Ninety Six.

SOUTH DAKOTA

To Camp Bowie, Fort Worth, Texas, from Fort Riley, and report to Commanding General, 36th Div., for duty, Lieut. Glenn V. Sigler, Highmore.

To Camp Cody, Deming, N. M., from Fort Riley, for duty, Lieut. Frederick O. Kaps, Britton.

TENNESSEE

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Lieut. Charles H. Davis, Knoxville.

To Fort Des Moines, Iowa, for instruction, Lieut. Benjamin F. Davis, Columbia.

To Fort Oglethorpe, for instruction, Capt. James Brew, Jr., Nashville; Lieuts. George E. Wilson, Cardiff; Guy McL. Reeser, Church Hill; John S. Miller, Collierville; Russell B. Wilson, Gates; Claude A. Frazier, Knoxville; James S. Skaggs, Maynardville; Charles C. King, Arthur R. Porter, Jr., Memphis; Emmett E. Brown, Nashville; Joe B. Wright, Pulaski.

To Fort Thomas, Ky., for duty, Lieut. T. B. Collins, Trezevant.

To Fort Worth, Texas, Signal Corps Aviation School, *now being* established, Lieut. S. W. Williams, Gassaway.

To Provisional Base Hospital, from Fort Oglethorpe, for duty, Capt. William G. Somerville, Memphis.

Par. 147, Special Orders No. 192, War Dept., Aug. 19, 1917, relating to Capt. William G. Somerville, Memphis, revoked.

TEXAS

To Camp Bowie, Fort Worth Texas, for duty, Lieut. C. P. Schenck, Waco.

To Camp Funston, from Medical Officers' Training Camp, Fort Riley, for duty, Lieut. Robert T. Jones, Bogata.

To Camp Greenleaf, Fort Oglethorpe, Ga., for duty, Capt. J. V. Blake, Floresville.

To Camp MacArthur, Waco, Texas, for duty, Lieuts. John Norris, Dallas; Harold E. Nicholson, Mobeetie.

To Camp Sherman, Chillicothe, Ohio, for duty as commanding officer of the Base Hospital, Major Edward G. Huber, Fort Bliss.

To Fort Des Moines, Iowa, for instruction, Lieut. Thomas N. Harris, Pilot Point.

To Fort Leavenworth, Kans., for temporary duty in Department Laboratory, Lieut. Sullivan R. Jones, Waco.

To Fort Oglethorpe, for instruction, Lieuts. Elmore B. Gilbert, Gorman; William J. Kesterson, Groom; Karl Chambers, Jasper; John M. Venable, San Antonio; Thomas R. Sealy, Santa Anna; William E. Burk, Sweet Water; Ebner H. Inmon, Lewis E. Turrentine, Tahoka; from Southern Department, Capt. Claude W. Cummings, El Paso; Lieut. Cranz Nichols, Maxwell.

To report by wire to the Commanding General, Southern Department, for assignment to duty, Lieut. Edwin T. Morris, Delvalle.

To San Antonio, Texas, for duty, Lieut. D. S. Edwards, San Antonio.

UTAH

To Camp Beauregard, Alexandria, La., from Fort Douglas, Utah, for duty as assistant in the care of cardiovascular cases, Lieut. Francis C. Tyng, Salt Lake City.

To Fort Douglas, Utah, for duty, Lieut. G. W. Clarke, Springville.

To Fort Logan, Colo., with 1st Colorado Inf., Lieut. B. W. Black, Grantville, Utah.

To Fort Oglethorpe, for instruction, Lieut. George E. McBride, Magna.

VERMONT

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, for duty in connection with sanitary train work, Lieut. Charles E. Libbey, Danville.

To Fort Ethan Allen, Vt., for duty, Lieut. G. A. Russell, Arlington.

To Fort Ontario, N. Y., duty with Field Hospital and Ambulance Companies Nos. 28 and 30, Lieut. V. P. Genge, Newport.

VIRGINIA

To Camp Jackson, Columbia, S. C., for duty, Lieut. S. W. Woodhouse, Virginia Beach.

To Camp Lee, Petersburg, Va., for duty, Capts. S. B. Moore, Alexandria; E. M. Parker, Emporia; J. W. Hope, Hampton; Lieuts. C. M. Easter, Chincoteague Island; P. C. Riley, Markham; I. H. Goldman, Richmond.

To Camp Mills, N. Y., with First Oregon Field Hospital, Lieut. J. N. Elder, Hopewell.

To Chickamauga Park, Ga., Ambulance Section, Sanitary Corps, from Fort Oglethorpe for duty, Lieut. James C. Motley, Abingdon.

To Fort Des Moines, Iowa, for instruction, Lieut. William A. Harris, Spotsylvania.

To Fort Oglethorpe, for duty, Lieuts. Maurice A. Selinger, City Point; for instruction, James B. Anderson, Richmond.

To Newport News, Va., for duty with Three Hundred and First Regiment, Lieuts. Hubert L. Wyatt, City Point; with Three Hundred and Second Regiment, W. C. Caudill, Pearisburg; J. T. Shelburne, Petersburg.

To home, from duty at Rockefeller Institute, New York, Capt. Lomax Gwathmey, Norfolk.

Letter, Aug. 6, 1917, No. 1760, War Department, as relates to Lieut. James B. Anderson, Richmond, is revoked.

WASHINGTON

To Camp Custer, Battle Creek, Mich., for duty, Lieut. J. M. Henderson, Seattle.

To Camp Lewis, American Lake, Wash., for duty, Capt. William G. Cassels, Lieuts. A. H. Peacock, Seattle; Frederick T. Hyde, Port Angeles.

To Fort Oglethorpe from Fort Lawton, Wash., for instruction, Lieut. Charles R. Glenn, Kelso.

To Fort Ontario, N. Y., duty with Field Hospital and Ambulance Companies Nos. 28 and 30, Lieut. R. C. Hill, Irondale.

To Lake Charles, La., Aviation School, now being established, Lieut. R. A. Allen, Tacoma.

To Los Angeles, Calif., for duty, Lieuts. Roy C. Baumgarten, Seattle; for course of instruction in military roentgenology, Burton E. Paul, Tacoma.

WEST VIRGINIA

To Camp Sherman, Chillicothe, Ohio, for duty, from Camp Lee, Petersburg, Va., Capt. Rawley H. Powell, Elkins.

To Chickamauga Park, Ga., for duty with Headquarters Military Police, from Fort Oglethorpe, Capt. John S. Shaffer, Cannelton.

To Fort Ethan Allen, Vt., for duty, Lieut. H. D. Law, Conings.

To Fort Oglethorpe, from Army Medical School, for instruction, Lieut. William Nelson, Hansford.

To Fort Ontario, N. Y., duty with Field Hospital and Ambulance Companies Nos. 28 and 30, Lieut. L. Huth, Follansbee.

To Newport News, Va., with Three Hundred and Second Regiment, Lieut. A. C. Lambert, S. Charlestown.

A leave of absence from duty at Charleston, of ten days, commencing Oct. 18, 1917, granted to Major John E. Cannaday, Charleston.

WISCONSIN

To Camp Bowie, Fort Worth, Texas, from Fort Riley, and report to Commanding General Thirty-sixth Division for duty, Lieuts. Sylvester J. Driessel, Barton; Henry B. Beeson, Cornell; Frank O. Bruckhorst, Kewaunee; Edgar B. Elvis, Medford; John C. Johnson, Ogdensburg; Herbert T. Barnes, Pewaukee; Edgar W. Bedford, Sheboygan; George L. Converse, Webster.

To Camp Doty, Deming, N. M., from Fort Riley, for duty, Lieuts. Marlin C. Crane, Osseo; Harry A. Keenan, Stoughton; Neal S. Simons, Taylor.

To Camp Funston, from Medical Officers' Training Camp, Fort Riley, for duty, Capts. Clarendon J. Combs, Oshkosh; Frederick C. Huff, Sturgeon Bay; Lieuts. Albert A. Axley, Butternut; Frank J. Hager, Denmark; Royal C. Rodecker, Holcombe; Harry J. Burne, Hudson.

To Camp Jackson, Columbia, S. C., for duty, Major N. M. Black, Milwaukee.

To Camp Sheridan, Montgomery, Ala., from Fort Benjamin Harrison, for duty as member of tuberculosis examining board, Lieuts. Harry C. Mix, Green Bay; Michael R. Wilkinson, Oconomowoc.

To Camp Travis, Fort Sam Houston, Texas, from Fort Benjamin Harrison, Ninetieth Division, for duty as tuberculosis specialist and assistant to the Army Medical Staff, Lieut. Herman H. Bassler, Oshkosh.

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Lieut. Adelard E. Gendron, River Falls.

To Fort Oglethorpe, for instruction, Lieuts. Cornelius J. Corcoran, Harry B. Podlasky, Milwaukee; Charles A. Dawson, River Falls; Orlando P. Schoofs, Wauwatosa.

WYOMING

To Fort Ontario, N. Y., duty with Field Hospital and Ambulance Companies Nos. 28 and 30, Lieut. W. S. Bennett, Cody.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Personal.—Dr. Sherman T. White, Redding, county physician of Shasta County, sustained a fracture of the patella when his automobile collided with another machine, September 17.——Drs. Clayton G. Stadfield and Byron Stuckey, assistant surgeons at the Receiving Hospital, Los Angeles, have resigned to enter military service, and have been succeeded by Drs. Elmer L. Biggs and John W. Crossan.——Dr. Karl L. Dieterle has been appointed surgeon at the Receiving Hospital, Los Angeles.

Medical Research Society Organized.—A clinical society to further medical and surgical research was organized in the San Francisco Hospital, September 26, and the following officers were elected: president, Dr. Robert A. Jones; vice president, Dr. H. J. Pruett; secretary, Dr. Maurice Heppner, and treasurer, Dr. Robert A. Powers.

Tuberculosis Society Moves.—The Los Angeles Society for the Study and Prevention of Tuberculosis has moved its office from Normal Hill Center to 538 Chamber of Commerce Building.

Faculty Members in Active Service.—Among the members of the faculty of the University of California Medical School who have been called into active service in the Medical Officers Reserve Corps are Dr. Herbert C. Moffitt, San Francisco, professor of medicine and dean of the medical school, who has been commissioned major, and stationed at the Army Hospital at San Antonio, Texas; Dr. Eugene S. Kilgore, who has been commissioned major, and is stationed at the Presidio in San Francisco; Dr. Alanson Weeks, instructor in surgery, commissioned major; Dr. Howard E. Ruggles, assistant clinical professor of roentgenology, and Dr. Jule B. Frankenheimer, instructor in medicine, commissioned captains; and Drs. Elbridge J. Best, Frank P. Brendel, Arthur C. Gibson, Charles L. Tranter and Daniel W. Sooy, commissioned first lieutenants.

COLORADO

Personal.—Dr. John L. Schwer, Pueblo, is ill with typhoid fever in St. Mary's Hospital.——Dr. William E. Stemen, Denver, has been appointed chief surgeon of the National Guard, Colorado Springs, succeeding Major William A. Jolly, Boulder, who has been appointed assistant to the chief surgeon, Camp Kearny, Linda Vista, Calif.

State Society Meeting.—The forty-seventh annual meeting of the Colorado State Medical Society was held in Colorado Springs, September 25 to 27, under the presidency of Dr. Alexander C. Magruder, Colorado Springs, and the following officers were elected: president, Dr. Edward Jackson, Denver; vice presidents, Drs. Peter O. Hanford, Colorado Springs; John H. Bush, Sterling; Byron B. Blotz, Rocky Ford, and Charles Trueblood, Monte Vista; secretary, Dr. Crum Epler, Pueblo (reelected for the third term); treasurer, Dr. William A. Sedwick, Denver; delegate to the American Medical Association, Dr. Lewis H. McKinnie, Colorado Springs, and alternate, Dr. Melville Black, Denver. Estes Park was decided on as the place of the next annual meeting. A resolution was adopted to give financial support, when needed, to the families of all members of the association in war service. One hundred and forty members of the society are at present in the Medical Corps or Medical Reserve Corps of the Army.

DISTRICT OF COLUMBIA

Building Commandeered for Medical Department.—The Premier apartment house, 1718 Eighteenth Street N.W., Washington, is reported to have been commandeered by the United States government for the use of the Medical Department of the Army.

Hospital to Move.—The Washington Eye, Ear, Nose and Throat Hospital will move into its new building at 2517 Pennsylvania Avenue, October 17. The new building is four stories in height, fireproof, and occupies a frontage of 56 feet. The completion of the hospital is largely due to the efforts and contribution of Dr. Oscar Wilkinson.

Medical Society Centennial.—The Medical Society of the District of Columbia will celebrate its one hundredth anniversary, October 17. Exercises will be held in the hall of the National Museum, and a banquet will be given at the Raleigh in the evening. The society, which was organized in 1817, with an initial membership of sixteen, has now more than 600 members.

ILLINOIS

Conference of Charities and Corrections.—The State Conference of Charities and Corrections will be held in Joliet, October 26 to 28.——The Charity Organization Confederation and the State Probation Officers' Association will meet on October 25, and the State Association of County Home superintendents, October 25 and 26, in the same city.

Personal.—Dr. Fred M. F. Meixner has been appointed medical director of the new Peoria Municipal Tuberculosis Sanatorium, and assumed his duties, October 1. The building under construction will be finished about March 1, and in the meantime patients will be cared for in the pavilions now open on the grounds.——Dr. Marguerite G. Squires, Carrollton, has been appointed county physician of Grundy County.——Dr. Hiram J. Smith, assistant superintendent of the Ann State Hospital, has been appointed superintendent of the Illinois Charitable Eye and Ear Infirmary, Chicago, succeeding Dr. James L. O'Connor.

Chicago

Glanders Case Found.—A case of glanders is said to be under treatment and in strict quarantine in St. Luke's Hospital. The disease is presumed to have had its source in the barns of an express company where five horses suffered from the disease.

Provident Hospital in Need.—An urgent appeal to raise $15,000 has been made by the trustees of the Provident Hospital, which was founded in 1896 for the care of colored sick and injured in Chicago. On account of shortage of funds the free dispensary of the institution has been forced to close its doors.

IOWA

Open-Air School in Sioux City.—The board of supervisors of Woodbury County have approved the establishment of an open-air school on the roof of the new court house, for the accommodation of tuberculous and anemic children.

Personal.—Dr. David W. Reed, Clearfield, suffered a fracture of a rib, September 20, as a result of the overturning of his [illegible] Major David S. Fairchild, Jr., M. C., Iowa N. [illegible] transferred to the military service of the United States, and has been assigned to duty with the Forty-Second Division.

County Clinics on Tuberculosis.—A. E. Kepford, state lecturer on tuberculosis and director of Red Cross work in Iowa, has planned tuberculosis clinics in every county of the state, to be held by the county medical society. The first clinic was held at Clarion, September 21. With these clinics it is expected to accomplish the stamping out of tuberculosis by early diagnosis, the arousing of the people to the perils of the disease, and the stirring up of interest among the medical profession.

Hospital Items.—The Cottage Hospital, Albia, has been discontinued on account of the difficulty in obtaining help. ——Dr. Carl E. Conn, Sioux City, has purchased the Dennison Hospital and Sanatorium at a price stated to have been $7,600.——The John MacDonald Hospital, Monticello, was formally opened to the public, September 6. The hospital is three stories in height, of brick and stone construction, and has the most complete and up-to-date equipment.——The new State Hospital for Epileptics, at Woodward, is completed and in active operation.

KANSAS

Typhoid.—Between fifty and sixty cases of typhoid fever were reported in and around El Dorado during the first two weeks of September. The county health officer urges the boiling of water, the abolition of flies, the covering of food, and the like.

Personal.—Dr. Samuel A. Matthews, professor of physiology and experimental pharmacology in the University of Kansas, Topeka and Lawrence, has accepted the similar chair in the University of Alabama, Mobile.——Dr. Stewart McKee has been appointed city physician of Leavenworth, succeeding Capt. Charles McKee, who is at Fort Riley in the military service.——Dr. Thomas A. O'Connor, Topeka, has been appointed county physician of Shawnee County, to fill the unexpired term of Dr. C. C. Lowe, called to the colors.——Dr. Matthew R. Mitchell, North Topeka, has given up his office and moved to Florida.

MARYLAND

Epidemic of Scarlet Fever.—An epidemic of scarlet fever is prevalent in Federalsburg. Several families are quarantined as a result of the outbreak, and the county health officers are using every precaution to stamp out the disease.

Child Welfare Unit for France.—The child welfare unit to be sent abroad by the American Red Cross, in charge of Dr. J. H. Mason Knox, will leave for France about October 13. Dr. James L. Gamble, assistant in pediatrics at the Harriet Lane Hospital for Children, a part of the Johns Hopkins Hospital, will accompay Dr. Knox.

Typhoid Fever Outbreak.—Typhoid fever has broken out at the Maryland School for Boys, an industrial institution at Loch Raven. At present there are thirteen cases under treatment. The state board of health is conducting an investigation to ascertain the cause of the outbreak and has provided antitoxin to inoculate all the school. The outbreak is thought to be due to a typhoid carrier.

Medical Men Assigned to Regiment.—The men who will form the Medical Corps attached to the 115th (Maryland's Own) Regiment, now stationed at Anniston, Ala., have been selected from the three old regiments and are under the command of Major Frederick H. Vinup. His staff is composed of Capt. William J. Coleman, former superintendent of the University Hospital, Baltimore; Lieuts. Dwight H. Mohr, Roscoe Hannigan, Daniel Woodruff, J. K. Richards and Daniel Hutton. Under their command will be an enlisted personnel of forty-eight men, thirty-three of whom will be selected from the Fifth Regiment and the rest from the First.

Health Department Report.—According to a report made by the health department for September, 147 babies under 2 years of age died in Baltimore from intestinal troubles. Ninety-three babies died in September last year. The increase is said to be due to atmospheric conditions rather than to outbreaks of diseases usually fatal to infants in summer and early autumn. Deaths in the city last month from all causes totaled 869, compared with 750 in 1916; 704 in 1915, and 771 in 1914. Diseases were fatal in the following number of cases: typhoid fever, 15; measles, 4; grip, 2; cancer, 54; tuberculosis, 104; apoplexy, 52; heart disease, 79; bronchitis, 7; pneumonia, 57; Bright's disease, 63; meningitis, 1. There were 1,242 births reported.

MISSOURI

Sanatorium To Be Closed.—Dr. William H. Coon, health director of Kansas City, proposes to close the Leeds Tuberculosis Hospital, concentrating the antituberculosis work in the General Hospital, with a downtown clinic to be established for this work.

Personal.—Major Charles E. Wilson, Kansas City, surgeon of the Second Missouri Field Artillery, and formerly fire department surgeon, was presented with a handsome wrist watch and a pair of field glasses, September 8. The gift came from 375 city firemen.——The Civil Service Board of Kansas City, August 29, waived the ruling requiring a civil service examination and residence in the city for three years, in the case of Dr. Elliott Washburn, the new manager for the hospital division of the board of health.——The Board of Health of St. Joseph, at its meeting, August 30, released Dr. John L. Cox as surgeon, and appointed Dr. V. R. Wilson his successor.

Honor to Fitzsimmons.—The first meeting of the Jackson County Medical Society after the summer vacation was held in Kansas City, September 18. A military program was given, at which Col. William N. Bispham, M. C., U. S. Army, Fort Riley, Texas; Lindsay S. Milne, director of the ambulance company at the same post, and Capt. W. M. McBride of Camp Funston spoke. Resolutions were adopted on the death of Lieut. William T. Fitzsimmons, Kansas City, the first American officer to be killed in France.——In the United States House of Representatives, Representative Borland of Missouri introduced a resolution ordering the War Department to promote the late Lieutenant Fitzsimmons to a captaincy.

NEW JERSEY

Antituberculosis Clinic Grows.—The clinic of the Middlesex County Anti-Tuberculosis League which is held weekly at the Perth Amboy Hospital and at the rooms of the board of health, New Brunswick, is gradually increasing. The freeholders have recently purchased 208 acres of land near Metuchen on which to erect a county tuberculosis sanatorium.

Personal.—Dr. Louis Shalet has resigned as superintendent of the Montefiore Home and County Sanatorium, Bedford Hills, and will practice in West New York.——Lieut.-Col. William G. Schauffler, Lakewood, chief surgeon of the New Jersey National Guard, has been appointed assistant surgeon at Camp Beauregard, Louisiana.——Dr. William S. Jones, Camden, has been appointed a member of the board of managers of the Glen Gardner Tuberculosis Sanatorium, succeeding Dr. William H. Kinsinger, Camden.

NEBRASKA

Hospital Changes Hands.—The Wesleyan Hospital at University Place, Lincoln, has been purchased by Dr. Elbert J. Latta and other physicians, who assumed charge of the institution, September 1.

Smallpox.—September 21, twenty-four persons in eight Omaha families were reported to be ill with smallpox.——An epidemic of smallpox in Rokeby has caused quarantine of the postoffice in that place.

University of Nebraska Hospital Opened.—The University of Nebraska Hospital, located on the Medical College Campus, Lincoln, was opened for the reception of patients, September 1. The building is four stories in height, and has accommodation for 120 patients.

Furnas County Physicians Meet.—At the meeting of the Furnas County Medical Society, held in Arapahoe, August 5, Dr. Lee W. Rork, Oxford, was elected president, succeeding Dr. Fordyce H. McCabe, and Dr. John K. Muldoon, Arapahoe, was elected secretary, succeeding Dr. James M. Willis, Arapahoe. Both these officers have entered the service of the country.

Personal.—Dr. Roy A. Dodge, Omaha, has been appointed division surgeon for the Missouri Pacific Railroad system. ——Dr. Ernest O. Weber, Waco, has been commissioned, by the governor as major, Medical Corps, Neb. N. G., and has been assigned to duty as medical inspector of the new National Reserve Regiment, succeeding Dr. Frank S. Nicholson, St. Paul, retired.

NEW YORK

Assistant Resident Physician Wanted.—A civil service examination for first assistant resident physician in the Iola Sanatorium for the Treatment of Tuberculosis, Monroe County, will be held in the near future; salary $1,200 a year and maintenance; applicants must be citizens of the United States, licensed physicians of New York state, graduates of an incorporated medical college, at least 21 years of age, and must have been for at least three years' residents of the state. It is desired to secure an appointee who has had experience in the institutional treatment of tuberculosis. Requests for application form should be made to the State Civil Service Commission, Albany, and applications must be filed prior to October 24.

New York City

New York Academy of Medicine.—The Wesley M. Carpenter lecture is to be delivered at the next meeting of the New York Academy of Medicine, October 18, by Dr. William H. Mayo of Rochester, Minn. His subject will be "The Rôle of the Spleen in the Production of a Number of Obscure Clinical Phenomena."

Flower Hospital to Become Base Hospital Unit.—At a meeting of the Flower Hospital War Relief and its affiliated societies, held on October 5, Dr. Royal S. Copeland, dean of the hospital, announced that application had been made to turn the Flower Hospital into a base hospital unit and that this application would soon be granted. It was voted to increase the appropriation for medical supplies from $10,000 o $25,000 and to double the personnel of the hospital.

Red Cross Rally.—The first great Red Cross parade ever held in this country and the largest body of war nurses ever gathered together paraded Fifth Avenue on October 4. The fifty Red Cross chapters represented succeeded in giving one of the most impressive demonstrations of the scope of America's war preparations that New York has witnessed. Among those leading the parade were Major-Gen. William C. Gorgas, Rear Admiral William C. Braisted and Henry P. Davison.

The Poets' Ambulances.—The American Poets' Committee which announced some time ago that it would send 50 ambulances for General Cadorna's army now announces that it proposes to send 100 ambulances. It has already purchased 28 ambulances by cable to be put into the field immediately and has funds for the purchase of 12 more. A unit of $2,000 purchases one ambulance and a number of individuals have contributed this sum. Ambulances purchased in this way bear the name of the donor, not as a matter of pride but as a reinforcement of Italian valor.

Urge Government Control of Narcotic Drugs.—As a result of the disclosure of the extent of criminal traffic in narcotic drugs in this city the Federal Grand Jury has passed unanimous resolutions asking United States Attorney Caffey to take the matter up with the federal government. These resolutions contain recommendations urging that chemists and internal revenue inspectors be assigned to every plant where the drugs are manufactured; that the product be shipped to government warehouses in zones to be established; that the government should control the price, the quantities shipped to wholesale druggists, jobbers, dealers, retailers and pharmacies, all of whom, and manufacturers as well, should be bonded and licensed, and that the government should control exports and imports. The resolutions request that an adequate bill be prepared for presentation to Congress that will prevent the continuance of conditions such as have been brought to light by the investigations of the internal revenue inspectors in this city.

Free Clinic for Speech Defects.—In view of the fact that many American soldiers are likely to return from the front with their powers of speech impaired either as the result of wounds or of shell shock, the various branches of medicine bearing on the treatment and correction of speech defects have been coordinated in a new institution which has been incorporated under the name of the New York Clinic for Speech Defects. This clinic will be opened at 143 East Thirty-Seventh Street sometime during the month of October, with Dr. Herbert L. Wheeler as president. Among those interested in the project are Dr. Abraham Jacobi, Thomas A. Edison, Drs. John E. MacKenty, Philip D. Kerrison, George M. Parker and James Sounett Greene, who will have charge of the clinic. In addition to treating the speech defects that result from war injuries, defects inherited or acquired will be treated and those having a foreign accent which they wish to overcome will be treated as though the accent were a speech defect. The institution will be supported by private philanthropy.

High Cost of Milk Problem.—Owing to the intimate relation between the cost of milk and child welfare the health department believes that this is a matter in which it should directly concern itself. Inquiries already made and still under way among the families of the poor show that the use of milk has been decidedly restricted because of the increased price. In some places the sales of milk for family use have decreased as much as 20 per cent. The health department attributes a notable increase in the number of deaths from diarrheal disease in children under 1 year of age to this practice. As a result of the facts brought out, Commissioner Emerson has written a letter to Mayor Mitchell suggesting that the city schools, baby health stations, settlement houses, hospitals, dispensaries and police stations be used as central points for the distribution and sale of milk, bread and perhaps other staple articles of food whose cost is excessively high because of the wastefulness of present methods of distribution. At the request of the health commissioner, the mayor has appointed a committee to elicit all the facts in relation to this matter and to make constructive suggestions.

OREGON

Sanatorium Opened.—The new sanatorium of Dr. Edward A. Pierce, Portland, known as Cedar Crest Farm, is now completed and opened for patients. The building is located near the city limits of Portland, overlooking the Willamette Valley, and is two stories in height, with extensive verandas on both floors.

Personal.—Dr. J. Hunter Wells has returned to Portland and assumed practice after twenty-two years spent in the missions and mines of Corea.——Dr. John H. McVay, Hood River, who sustained serious injuries to his spine a year ago, is reported to be seriously ill in the Hood River Hospital. ——Dr. Frank M. Brooks, Portland, has been appointed a member of the state board of health, succeeding Dr. Marius B. Marcellus, who has been called to the colors.——Dr. William H. Dale, Harrisburg, has been appointed a member of the State Medical Board, to succeed Dr. Harry E. Clay, Salem, who has entered the military service.——Dr. Alvin F. Sether, Roseburg, is ill with typhoid fever.

PENNSYLVANIA

Philadelphia

Reception of Dr. Prince.—The Medical Club of Philadelphia will give a reception in honor of Dr. Morton Prince of Boston, October 19, at the Bellevue-Stratford Hotel.

Social Diseases.—At the stated meeting of the College of Physicians and Surgeons, Col. Thomas H. Goodwin made a brief address; Col. Frederick F. Russell, M. C., U. S. Army, presented a paper on "Social Diseases in the Army"; Major William F. Snow, M. C., U. S. Army, a paper on "Social Diseases in the Army as Effected by the Soldier's Environment"; Mr. George W. Braden, a paper on "The Present Site of Social Diseases." Dr. William W. Keen presented to the college the retractor used in the operation on President Grover Cleveland in 1893.

Personals.—Major George E. deSchweinitz, Medical Reserve Corps, has been assigned to active duty at Philadelphia for the purpose of compiling a handbook on ophthalmology for the use of the Surgeon-General of the Army.——Dr. Santos Fernandez, president of the Cuban Academy of Science, and one of the most distinguished eye surgeons of Cuba, was the guest of honor at a luncheon given October 2 by Dr. William Campbell Posey of the Wills Eye Hospital.——Dr. J. Torrance Rugh has been commissioned captain, M. R. C., U. S. Army, and appointed by the Surgeon-General as an instructor in orthopedics at the southern camps.

SOUTH DAKOTA

New Officers.—The annual meeting of the Lake Preston Medical Society was held at Lake Preston, October 3, the president, Dr. E. H. Grove, Arlington, in the chair. Dr. Burtis T. Green, Brookings, was elected president; Dr. Lorenzo N. Grosvenor, Huron, vice president, and Dr. John C. Baker, Ramona, secretary-treasurer.

Work on Sanatorium Commenced.—The state board of charities and corrections, having failed to secure bids for the construction of the addition to Custer Tuberculosis Sanatorium, has undertaken the carrying on of the work itself, and expects to have the most important pavilion ready for use before winter sets in.

WYOMING

Medical Society Meeting.—The Northwest Medical Society held its quarterly meeting in Worland, recently, and elected the following officers: president, Dr. Will V. Gage, Worland; vice president, Dr. Chester E. Harris, Basin, and secretary-treasurer, Dr. W. B. Mauis Powell. The next meeting will be held in Lovell, December 2.

CANADA

Personals.—Prof. John C. McLennan, Ph.D., head of the department of physics, University of Toronto, and member of the Canadian Commission on Chemical Research, is among the first group to receive the honor of the new Order of the British Empire.——The name of Col. Herbert A. Bruce, Toronto, is prominently mentioned in connection with the nomination of federal candidates for parliamentary honors in the coming Dominion election. Dr. Bruce, who is still in France, may possibly contest the constituency of North Toronto in the Liberal-Conservative interest.

Winnipeg's Vital Statistics.—According to the report of the city assessor of Winnipeg for 1917, as set forth in the *Bulletin* of the health department, there has been a reduction in the population of over 17,000 as compared with 1916. The figures for 1917 are 182,848, and for 1916, 200,000. This decrease has been going on since 1914, and the enlistments for the war and the removal of the floating population are assigned as reasons. This had had an interesting effect on the vital statistics of the city. The births for 1917 were 2,842, as compared with 3,046 for 1916. Though this is a reduction in the actual number of births, there has been an increase in the number of births per thousand, which is accounted for by the fact that the number of mothers in the city has increased. Many families from which the soldier has gone to war have moved into the city from the surrounding country. The marriages in 1917 were 1,158, as compared with 1,482 in 1916. It is said that the marriage rate has undoubtedly decreased among those of marriageable age, but exact figures on this point are not available. It should be based on the number of single men and women of marriageable age. The substitution of families of young children in the place of adults would be expected to have had an unfavorable influence on the mortality rates, but it is noted that for the six months of 1917 the rate was 10.41, as against 11.13 for 1916. The number of deaths from disease of the respiratory system, diarrheal diseases in children under 2 years of age, tuberculosis of all forms and deaths from external causes all decreased. The mortality rate for the acute communicable diseases also shows a slight decrease. Deaths from cancer in persons over 40 show increases.

Hospital News.—An institution for the education and training of blind soldiers is to be established at Halifax, N. S. The organization work will be under the supervision of Sir Frederick Fraser, Halifax, who has been so successful in building up the Halifax School for the Blind.——The summer hotel at Qualicum, Vancouver Island, B. C., has been converted into a convalescent home for returned soldiers. The institution now holds 100 patients.——A few months ago a municipal hospital act was passed in the province of Alberta which provides that the province shall be divided into districts and that hospital boards shall be appointed to provide for the location and purchase of suitable hospital sites; the purchase, acquisition, or erection of suitable buildings, furnishings and equipment. Although the act does not compel a municipality to establish a hospital, every facility and inducement is offered for the establishment of such hospitals. The provisional government will see that money collected for this purpose shall be expended to the best advantage.——Approximately 1,500 patients admitted to the Toronto Military Base Hospital every year are afflicted with venereal diseases; and during the first three months of 1917, 12 per cent. of all patients in the public wards of the Toronto General Hospital gave a positive Wassermann reaction. Twenty-five per cent. of the male admissions to the Toronto Hospital for the Insane are cases of general paresis.——About 1,200 tuberculosis cases among returned soldiers have thus far passed through the hands of the Canadian Hospitals Commission, while over 800 are undergoing treatment.——An advisory committee on tuberculosis has been appointed to assist the Canadian Hospitals Commission. The members of that committee are Capt. John R. Byers, Ste. Agathe, Que.; Dr. Charles D. Parfitt, Gravenhurst, and Dr. Jabez H. Elliott, Toronto.

GENERAL

Prevention of Infant Mortality.—The eighth annual meeting of the American Association for the Study and Prevention of Infant Mortality will be held in Richmond, Va., October 15 to 17, under the presidency of Dr. William C. Woodward, Washington, D. C. The subjects to be discussed by the association will be, "Pediatrics; Obstetrics, Propaganda; Vital and Social Statistics; Rural Communities; Nursing and Social Work, Eugenics, and Public School Education for the Prevention of Infant Mortality.

Social Hygienists to Meet.—The annual meeting of the American Social Hygiene Association will be held at the Belvedere Hotel, Baltimore, October 19, for the election of officers and directors, and to consider further mergers with social hygiene societies and other agencies. A program of public meetings and conferences has been arranged jointly with the American Health Association for October 18, and on the morning of October 19, and in Baltimore with the Baltimore Medical Society and the Maryland Social Hygiene Society on the afternoon and evening of that day.

District Society Meeting.—The regular fall meeting of the Iowa and Illinois Central District Medical Association was held at the Rock Island Club, Rock Island, Ill., October 11. The scientific program included illustrated lectures on "The Diagnosis of Renal Tuberculosis," by Nathaniel G. Alcock, Iowa City, Iowa, and "Recent Studies in the Etiology and Treatment of Experimental and Human Poliomyelitis," by Dr. John W. Nuzum, Chicago, and a discussion of "Some Medico-Economic Questions," by Dr. David S. Fairchild, Clinton.

National Board in Session.—The third examination of the National Board of Medical Examiners is now being conducted in the Cook County Hospital. The session this year will cover an entire week, beginning Wednesday, October 10. About sixty-five candidates are being examined. The certificates of this board are now recognized by the licensing boards of Colorado, Delaware, Idaho, Iowa, Kentucky, Maryland, New Hampshire, North Carolina, North Dakota, Pennsylvania, Rhode Island and Vermont. Several other states are contemplating similar action.

Bequests and Donations.—The following bequests and donations have recently been announced:

Methodist Episcopal Hospital, Indianapolis, $75,000, by the will of Mrs. Emma Messick, Shelbyville.

College of Physicians and Surgeons in the City of New York, a donation of $50,000 for the necessary enlargement of the medical school equipment to care for women students, by George W. Brackenridge, San Antonio, Tex.

The Martinez Anti-Tuberculosis Fund, Dallas, Tex., for the treatment and assistance of indigent persons affected with tuberculosis, a gift of $1,000 or more annually, by Mr. B. P. Martinez.

Cincinnati General Hospital, a monthly payment of $10 from the pay of O. W. Cuhn, a sailor in the United States Navy, in gratitude for treatment received at the hospital.

That Confounded Comma.—A thousand and one stories have been published regarding the havoc caused by the misplaced coma. Sometimes this havoc is amusing; sometimes it is serious; and sometimes it is between the two. The havoc caused by a misplaced comma in our columns two weeks ago comes under the last designation. Commenting on Dr. Keen's article on the operation on President Cleveland, we wrote:

> "While the article is not of particular scientific or surgical importance, historically it is of decided interest."

The intelligent compositor, however, thus gave it to our readers:

> "While the article is not of particular scientific or surgical importance historically, it is of decided interest."

Lane Medical Lectures.—The sixteenth course of Lane Medical Lectures at Stanford University, San Francisco, will be delivered by Dr. Simon Flexner, director of laboratories of the Rockefeller Institute for Medical Research, New York, on the evenings of October 8 to 12 inclusive in Lane Hall. The chief subject will be "Physical Basis and Present Status of Specific Serum and Drug Therapy." The titles of the separate lectures are as follows:

October 8: Epidemic Meningitis; Lobar Pneumonia; Bacillary Dysentery and Specificity in Bactericidal Sera.

October 9. Gaseous Gangrene; Shiga Bacillary Dysentery, and The Principles of Homoserum Therapy.

October 10: Poliomyelitis and the Principles of Homoserum Therapy.

October 11: Local Specific Therapy as Illustrated by the Serum Treatment of Epidemic Meningitis, Poliomyelitis and Tetanus.

October 12: Chemotherapy of the Spirochetal Infections.

Clinical Congress of Surgeons.—The meeting of the Clinical Congress of Surgeon of North America will be held in Chicago, beginning Monday, October 22, and continuing to and including Friday, October 26. The opening meeting will be held in Orchestra Hall at 8:15 p. m., October 22, at which will be delivered the addresses of the retiring president, Dr. F. B. Lund, Boston, of the incoming president, Dr. John G. Clark, of Dr. Franklin Martin, of the Advisory Committe of the Council of National Defense, and of Dr. A. J. Ochsner, chairman of the committee of arrangements. The meeting will be given a military tone by the presence of the Surgeons-General of the Army, Navy and Public Health Service, Gorgas, Braisted and Blue, Col. T. H. Goodwin, and Sir B. G. A. Moynihan of the British medical services, Col. C. Dircle, France, and Dr. George W. Crile, recently in France. The scientific meetings of Tuesday, Wednesday, Thursday and Friday will be held in the Gold Room of the Congress Hotel. The presidential address will be given Thursday night, October 25, at 8 p. m., by President John G. Clark, his subject being, "Radium in the Treatment of Cancer of the Uterus." The articles to be read and the discussions are expected to have a distinct military bearing. The day work of the Congress will be made up of clinics at the various hospitals.

Health in the Canal Zone.—The report of the Health Department of the Panama Canal for July, 1917, shows that the health of the population in the Zone terminal cities was good. Whooping cough was prevalent in Balboa and Gatun districts. One case of infantile paralysis occurred in the Pedro Miguel district in a child aged 3 years, without history of contact with any previous case. Two cases occurred in December, 1916, in the Balboa district, also without history of outside contact. This case of infantile paralysis was the only one of disease of quarantinable nature occurring during the month. Among the 32,587 employees of the Panama Canal and the Panama Railroad Company, there were 908 admissions to hospitals and quarters. Deaths from all causes numbered twenty-five, of which twenty-four were from disease. Diseases causing the highest admission rate to hospitals were, in the order of their numerical importance, venereal diseases, malaria, tuberculosis, organic diseases of the heart, and pneumonia. These five diseases, it is said, caused 35 per cent. of all admissions. Venereal diseases caused 14 per cent., and malaria 13 per cent. of admissions. In the civilian population of the Zone, numbering 24,038, there were thirty-five deaths, thirty of which were from disease. Of the deaths from disease, 47 per cent. occurred among children under 4 years of age. Sixty births were reported for the month. There were nine deaths among children under 1 year of age, all colored. The death rate from disease among the employees of the Zone was 8.84 per thousand, and among the civilian population 14.90 per thousand.

FOREIGN

Deaths in the Profession Abroad.—**F. A. Arango,** a prominent surgeon and obstetrician of Colombia, aged 62.——**A. da Graça Couto,** professor of ophthalmology at the University of Rio de Janeiro and director-general of the public health service, aged 53.

Marriages

Lieut. Harry Clark Hackman, M. R. C., U. S. Army, Flint, Mich., to Miss Edna J. Wheeler of Bellevue, Pa., September 15.

Raymond Rudolph Barbanell, M.D., San Francisco, to Miss Henrietta Hurwitz of Covina, Calif., in Los Angeles, September 13.

Lieut. Fletcher Barr Taylor, M. R. C., U. S. Army, to Miss Virginia Barnes of Leavenworth, Kan., September 8.

Major Kerwin Weidman Kinard, M. C., U. S. Army, to Miss Ada Lee Porter of Kansas City, Mo., October 10.

Jacob Richter Buchbinder, M.D., Chicago, to Miss Hazel H. S. Felman of Joliet, Ill., in Chicago, September 27.

John Francis Ahern, M.D., Springfield, Mass., to Miss Anna G. Byrnes of Worcester, Mass., September 17.

Homer Augustus Alexander, M.D., Topeka, Kan., to Miss Mary Helen Poage of Marshall, Mo., September 19.

John Ray Johnson, M.D., Lima, Ohio, to Miss Hallie Hawk of St. Marys, Ohio, at Monroe, Mich., August 2.

Lieut. Jacob A. Goodman, M. R. C., U. S. Army, to Miss Ida E. Ginsburg, both of Chicago, September 26.

Felix E. Baker, M.D., Stamps, Ark., to Miss Margaret Burleson of Wortham, Texas, September 9.

Francis Bonneau Johnson, M.D., to Miss Ritchie McGrann, both of Washington, D. C., September 11.

Chester Henry Keogh, M.D., Chicago, to Miss Katharine Knapp of Portland, Ore., August 9.

Joseph Florian Konapa, M.D., to Miss Marie Kasperek, both of Chicago, in August.

George D. Bowdoin, M.D., Wilmington, N. C., to Miss Christine Johnson, recently.

Deaths

Americus R. Allen, M.D., Carlisle, Pa.; University of Pennsylvania Philadelphia, 1887; aged 55; a Fellow of the American Medical Association; chief surgeon for the Cumberland Valley Railroad, and the Cumberland Valley Traction Company; a member of the staff of the Carlisle Hospital, and surgeon to Todd Hospital; died at his home, September 15, from septicemia due to an operation wound.

Arthur H. Bernstein, M.D., Scranton, Pa.; Jefferson Medical College, 1891; aged 54; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; for several years a member of the surgical staff of the Scranton State Hospital; died at his home, September 20, from cerebral hemorrhage.

Otto Saly Binswanger, M.D., Portland, Ore.; University of Maryland, Baltimore, 1882; aged 63; a Fellow of the American Medical Association; professor of organic chemistry in the University of Oregon, Portland; a member of the medical staff of St. Vincent's Hospital; a veteran of the Franco-Prussian War; died at his home, September 25.

Robert McAllister Richardson, M.D., Chattanooga, Tenn.; Chattanooga (Tenn.) Medical College, 1908; aged 33; formerly a Fellow of the American Medical Association; a member of the Tennessee State Medical Association; a specialist on diseases of the eye, ear, nose and throat; died at his home, September 18, from tuberculosis.

Lieut. George Plummer Howe, M. R. C., U. S. Army, Boston; Harvard Medical School, 1904; aged 39; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; is reported to have been killed in action, September 28, while on duty with the British forces in France.

William M. Baker, M.D., Shreveport, La.; Tulane University, New Orleans, 1874; aged 65; for many years a practitioner of Arcadia, La.; formerly a member of the Louisiana State Medical Association; for several years grand lecturer of the Grand Lodge, F. and A. M. of Louisiana; died at his home, September 24.

James Henry Elliott, M.D., West Plains, Mo.; Louisville and Hospital Medical College, Louisville, Ky., 1908; University of Louisville, Ky., 1909; aged 40; a Fellow of the American Medical Association, and president of the Howell County Medical Society; physician of Howell County; died at his home, September 24.

Peter Hughes, M.D., Brooklyn; New York University, New York City, 1879; aged 60; chief surgeon to St. Catherine's Hospital, Williamsburg, consulting surgeon to St. John's, St. Mary's and Jamaica hospitals; surgeon to the Brooklyn Ferry Company; died at his summer home, in Milford, Pa., September 30.

William Andrew Bindewald, M.D., Louisville, Ky.; University of Louisville, Ky., 1871; aged 76; formerly a Fellow of the American Medical Association; for thirty years physician to St. Joseph's Orphan Home; died in St. Joseph's Infirmary, Louisville, September 19, from disease of the stomach.

Jerome Samuel Bissell, M.D., Torrington, Conn.; Yale University, New Haven, Conn., 1894; aged 48; formerly a Fellow of the American Medical Association; a member of the Connecticut State Medical Society; died in a sanatorium in Waterbury, Conn., September 13, from nervous prostration.

Jesse Ralph Johnson, M.D., Amite, La.; Memphis Hospital Medical College, Memphis, Tenn., 1894; aged 52; formerly a Fellow of the American Medical Association; a member of the Louisiana State Medical Association; formerly coroner of Plaquemines Parish; died at his home, September 24.

Charles W. Nutting, M.D., Etna Mills, Calif.; Atlanta (Ga.) Medical College, 1876; aged 65; a Fellow of the American Medical Association, and past grand master of the F. and A. M. of California; for two years demonstrator of anatomy in his alma mater; died at his home, September 20.

Peter D. Fahrney, Hagerstown, Md. (license, Maryland); aged 74; a practitioner since 1867; formerly a clergyman of the Church of the Brethren; for more than thirty years a resident of Frederick, Md.; died at his home, September 22, from cerebral hemorrhage.

August George Horstman, M.D., Brooklyn; Cornell University, New York City, 1906; aged 39; a Fellow of the American Medical Association; formerly a member of the staff of the German and Jewish hospitals, Brooklyn; died at his home, September 26.

William James Francis Blaney, M.D., Baltimore; University of Maryland, Baltimore, 1896; aged 44; formerly a member of the Medical and Chirurgical Faculty of Maryland; died in St. Joseph's Hospital, Baltimore, September 25, from heart disease.

Bradbury Moulton Richardson, M.D., Brooklyn; New York Homeopathic Medical College, New York City, 1865; aged 75; from 1872 to 1880 surgeon of the Forty-Seventh Infantry, N. G. S., N. Y.; died at his home, September 23, from arteriosclerosis.

Andrew John Bilhoefer, M.D., New York City; New York University, New York City, 1885; aged 55; a Fellow of the American Medical Association; medical director of the Odd Fellows' Home; died at his home, August 28, from myocarditis.

Armistead Brooks Flippin, M.D., Nashville, Tenn.; University of Nashville, Tenn., 1857; aged 77; surgeon of the Eighth Arkansas Infantry, C. S. A., throughout the Civil War; died at his home, September 21, from cerebral hemorrhage.

Fred C. Dickson, M.D., Danville, Ill.; Indiana Medical College, Indianapolis, 1906; aged 36; formerly a Fellow of the American Medical Association; died in the Glen Rest Sanitarium, near Columbus, Ohio, September 20.

Benjamin F. Fortner, M.D., Vinita, Okla.; University of Nashville, Tenn., 1872; aged 70; a Fellow of the American Medical Association; for many years local surgeon for the Frisco system; died at his home, September 24.

Edward William Buhrmaster, M.D., La Harpe, Ill.; St. Louis College of Physicians and Surgeons, 1905; aged 37; who went to Colorado on account of his health; died in Colorado Springs, September 17.

Edwin Sharp, M.D., Argenta, Ark.; Vanderbilt University, Nashville, Tenn., 1881; aged 65; formerly a member of the Arkansas Medical Society; died in a sanatorium at Hot Springs, Ark., September 25.

George M. Wells, M.D., Wayne, Pa.; University of Pennsylvania, Philadelphia, 1895; for twenty-six years a practitioner of Wayne; died at the home of his son, near Annapolis, Md., September 24.

James M. Ferguson, M.D., Colorado Springs, Colo.; Medical College of the State of Carolina, Charleston, 1859; aged 89; a pioneer of the Pikes Peak region; died in Colorado Springs, September 25.

George H. Albright, Columbiana, Ohio (license, Ohio, 1896); aged 65; a member of the Ohio State Medical Association; died in the Salem (Ohio) City Hospital, September 21, from pneumonia.

Joseph Ferdinand Lindsey, Jr., M.D., Boston; Harvard Medical School, 1877; aged 67; who retired from practice about thirty years ago; died at his home in Roxbury, September 8, from angina pectoris.

James N. Riley, M.D., Stamping Ground, Ky.; Atlanta (Ga.) Medical College, 1857; aged 90; surgeon in the Confederate service throughout the Civil War; died at his home, September 18, from uremia.

Downing Howard Young, M.D., Wakeman, Ohio; University of Wooster, Cleveland, 1871; aged 71; a veteran of the Civil War; died at his home, September 10.

Robert Irvin McQuiddy, M.D., Lawrenceburg, Ky.; Jefferson Medical College, 1854; aged 86; died at his home, June 1, from senile debility.

Wellington C. Jeffers, M.D., Lindsay, Ont.; University of Victoria College, Coburg, Ont., 1867; aged 53; died at his home, July 17.

John Swope Mathias, M.D., Kansas City, Mo.; University of Maryland, Baltimore, 1879; aged 62; died at his home, September 17.

Floyd John Hodge, M.D., Florence, Mass.; Baltimore Medical College, 1908; aged 33; died in Plainfield, Mass., August 22.

John Allen Bernard, M.D., Minneapolis; University of Minnesota, Minneapolis, 1889; aged 71; died at his home, September 16.

Logan Cox, M.D., Hallidayboro, Ill.; University of Tennessee, Nashville, 1882; aged 55; died in East St. Louis, Ill., August 9.

Hugo Kinner, M.D., St. Louis; University of Berlin, Germany, 1863; aged 77; died at his home, September 11.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

GONOSAN

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report on Gonosan and authorized its publication.

W. A. Puckner, Secretary.

Gonosan (Riedel and Company, Inc., New York City) comes in the form of capsules, each said to contain 5 minims of a mixture composed of oil of sandalwood 80 per cent., and 20 per cent. of alpha- and beta-resin of kava, isolated by a patent process. The mixture, as the name implies, is intended for the treatment of gonorrhea.

This proprietary preparation was under consideration by the Council at various times from 1905 to 1910. During this time, the Council agreed to accept the preparation if the suggestive name was changed, the therapeutic exaggerations abandoned, and the drug kava admitted to New and Nonofficial Remedies. The name was not changed, the other questions were left open, and the preparation was not accepted.

Recent and more objectionable advertising of Gonosan makes it advisable for the Council to take action and to publish a report. The tone of this advertising is reflected by the following quotation from a recent advertising circular:

> "The old-established balsamic treatment of gonorrhea, for some years neglected in favor of the local injection of organic silver and other germicidal salts, has, with the increasing knowledge and attention paid to the composition and purity of the balsams, regained to a large extent the confidence formerly reposed in them.
>
> "It may now be said that the combined treatment with local injections and internal administration of natural balsamic products completely dominates modern gonorrheal therapy."

Any one conversant with current medical literature and practice would stamp these statements as misleading exaggerations. The balsams, oleoresins and volatile oils may have some value as minor adjuvants in the treatment of gonorrhea, but that is all. The position in this respect has not changed materially in recent years. These agents do not have a value equal to that of local treatment, as the quoted statement implies.

The claims made for Gonosan might with equal force be made for oil of santal alone. Kava kava, the other constituent, belongs to the pepper family; it had a temporary vogue some two or three decades ago but has failed to maintain a place. It has never been recognized officially. There is no scientific evidence that it has any value either alone or as an adjuvant to sandal oil. The "clinical reports" quoted in the advertising circulars, rather curiously, nearly all date back ten years or more, viz., to a period when the attitude of the profession toward proprietary remedies was less critical than it is now. It would be interesting to know whether these authors still adhere to their opinion, or whether any of them have subsequently had experiences similar to that of a correspondent who wrote:

> "Gonosan, at my hands, did not prove to be of more essential value in the treatment of gonorrhea than any other sandalwood oil preparation. The various claims made for Gonosan, that it possesses sedative and anesthetic properties, that by its continuous use the urethral discharge disappears more rapidly and that, if combined with appropriate diet and rest, it is liable to prevent complications, are, according to my experience, not corroborated by actual results."

The only experimental work quoted in support of Gonosan, that of Pohl, is not convincing. The doses that Pohl found necessary to influence experimental purulent pleurisy makes it impossible to transfer his work to the clinic. (He found a dosage of oil of santal corresponding to an ounce per day, for man, inefficient; positive results were obtained only with 2 ounces per day.)

In order to learn the estimate placed on the therapeutic value of the "balsams," an inquiry was sent to the authors of the papers presented to the section of Genito-Urinary Diseases at the recent meeting of the American Medical Association in New York. The inquiry read:

> "*Dear Doctor:*—An advertising circular for Gonosan 'Riedel' which is now being distributed begins thus:
>
> 'The old-established balsamic treatment of gonorrhea, for some years neglected in favor of the local injection of organic silver and other germicidal salts, *has, with the increasing* knowledge and attention paid to the composition and purity of the balsams, regained to a large extent the confidence formerly reposed in them.'
>
> 'It may now be said that the combined *treatment* with local injections and internal administration of natural balsamic products completely dominates modern gonorrheal therapy.' "
>
> "Is the statement correct that the combined treatment with local injections and internal administration of *natural balsamic products* completely dominates modern gonorrheal therapy? Your reply to the above will be appreciated by the Council."

Seventeen replies were received. They bear out the position that has been outlined. Only one writer considered the statement even *approximately justified*, and this in the sense that "the majority of cases receive no other treatment" than a combination of local applications and systemic medication. Another stated that, "in a general way their statement is true though a trifle too sweeping," and then added that the field of the balsams is rather restricted. With the exception of these qualified endorsements the remaining (fifteen) replies characterized the statement as *incorrect and misleading*. The replies are a valuable contribution to the status of the "balsam" *treatment of gonorrhea*, and extracts of them are appended to this report.

It is recommended that the Council declare Gonosan inadmissible to New and Nonofficial Remedies, because the therapeutic claims are exaggerated (Rule 6); because there is no evidence that the combination of kava resin with oil of santal is superior to oil of santal alone (Rule 10); and because the therapeutically suggestive name is conducive of indiscriminate and unwarranted use of the preparation both by the profession and the public (Rules 4 and 8).

Appendix

The extracts from replies received to the inquiry above referred to, follow:

Dr. B., Penn., wrote:

"In my practice I have found that local injections are very valuable in the treatment of gonorrhea, but I have never found that the internal *administration of* natural balsamics dominated modern gonorrheal therapy; while it is an aid, I consider the quoted statement to be very erroneous."

Dr. F., D. C., wrote:

"While it is doubtless true that acute urethritis, gonorrheal, is *now* generally treated by local injections of solutions of organic silver salts, and that santal oil is often used, it is not true, as one would *infer* from the quotation, that the balsams are *now* considered more efficacious than they were formerly. So *far as I know* they have not lost or regained anything during the past dozen years in the way of confidence reposed in them. The *indications for their use* is very definite and very limited."

Dr. B., Ga., wrote:

". . . in recent years I have almost abandoned the use of balsams, etc., in the treatment of gonorrhea. Patients, who are properly treated otherwise, seem to get along as well without such drugs as with them, in fact apparently better for they *have no gastric* disturbance. It is important for patients to drink freely of water and when so doing the balsams are so diluted that I cannot conceive of their doing much good. Formerly my patients often lost weight during the treatment of gonorrhea; now without *balsams and with plenty* of water, they usually gain in weight."

Dr. S., Mich., wrote:

". . . we believe that in a general way their statement is true though a trifle too sweeping. We do not *ordinarily* use the balsams in uncomplicated anterior urethritis. We *do* however, find indication for their administration in *from* sixty *to* seventy five per cent. of all cases of acute gonorrhea at some time *during* the course of the disease."

Dr. L., Mo., wrote:

"I would say that the statement that, '*The combined* treatment with local injections and internal administration of natural balsamic products completely dominates modern gonorrheal therapy,' is far from representing the facts. While the balsamics may occasionally have an indirect soothing effect on the *mucous* membranes *involved, the dominant factor is local treatment,* aiming at disinfection and restoration to normal of the inflamed tissues."

Dr. R., Mich., wrote:

"Regarding *your request* although *I am willing* to reply it is difficult to do so because if I *should* do so *in the* affirmative that could apply only to certain acute cases without *complication* of any kind and such cases are rare. In such, however, the advertiser is not far from right—since vaccine therapy *has proven absolutely* worthless we must *fall back* on antiseptics in acute *urethritis when there* are no objections to such treatment . . ."

Dr. K., Ill., wrote:

"I am under the impression *that the internal* administration of balsamics is used *only* when *complications arise*, such as acute posterior urethritis. Personally I use the balsamics very, very rarely. From my observation, however, I am led *to believe* that many men still use internal drugs in the treatment of *gonorrhea*, and during the past few years, I should *say* the use of *hexamethylenamin* has been on the increase, and the *use of the balsamics* on the decrease. I do not believe that hexamethylenamin *is of any value in* the treatment of gonorrhea, and am *simply citing this as my observation* of the widespread use of this *drug in the treatment of gonorrhea.*"

Dr. T., Penn., wrote:

". . . I believe that *more men use salol* or hexamethylenamin, or *no urinary antiseptic* whatsoever, than use the balsamics."

Dr. B., Ind., wrote:

". . . The only *systemic treatment* that is considered *necessary* today is rest, plenty *of water and neutralize* the acidity *of the urine with bicarbonate of soda* or *some sodium salt.*"

Dr. Y., Mass., wrote:

"Sandal wood oil during the acute stage of *gonorrhea* certainly tends to make the patient more comfortable and undoubtedly does lend some (tho I believe slight) gonococcidal action. That it plays any *considerable* part in actual cure I *think* is *doubtful*. The statement as quoted is true in so *far as it states that* local *treatment plus internal medication* with a balsam comprises most of the modern treatment of gonorrhea but it is grossly *misleading in* that it lets one draw the *inference* that the *balsam plays a large if* not the principal part."

Dr. H., New York, wrote:

"*For a period of at least three years in my hospital, dispensary* and private practice, I conscientiously tried out most of the balsamics on the market (including Gonosan, which I favored for some time) both alone, and combined with local injections. As a result of this study, I have come to the conclusion that the balsamics have little, if any value in the treatment of gonorrhea. During the past few years I have relied almost entirely on local therapy, and seldom prescribed any of the balsams in my private practice, certainly in not more than five per cent. of the cases. My results I find are just as satisfactory, and my patients appreciate the fact that they are not loaded up with disagreeable medication. Instead of the balsamics, I am using sodium bicarbonate more and more, and feel convinced that the proper use of this drug is of more value than all of them combined."

Dr. K., Cal., wrote:

"The *statement that the combined* treatment with *local injections* and *internal* administration *of* natural *balsamic products* completely dominates modern gonorrheal therapy, would at present not be justifiable even with reference to the initial or acute stage of gonorrhea, while in the subacute and chronic forms of the disease local injections and balsams play an almost insignificant rôle as compared with various other recognized therapeutic measures."

Meningitis.—The first clearly recognized epidemic of cerebrospinal meningitis occurred in Geneva, Switzerland, in the spring of 1805, followed during the years of 1806 to 1814 by a number of scattered outbreaks in widely separated localities of France and Germany. Coincident with this first series of epidemics in Europe occurred a similar series in America, beginning with an outbreak at Medfield, Mass., in 1806, and continuing until 1819, visiting during this period many localities in the United States and reaching Canada. Since that time periods of epidemic or pandemic prevalence have alternated with periods of comparative rarity. From 1836 to 1850 epidemics appeared in Europe, in France, Germany, Austria, Italy, Spain, Ireland and Denmark and in Algeria. In America there was a succession of outbreaks from 1842 to 1850. In its third period of prevalence, from 1850 *to* 1860, the disease visited chiefly the Scandinavian peninsula, hitherto spared, causing over 4,000 deaths from *1854 to 1861*.—W. H. Frost.

Correspondence

"MEDICAL SCIENCE ON THE SIDE OF ALCOHOL"?

To the Editor:—Recently I received a pamphlet marked as a reprint from a daily paper published in a state where a prohibition campaign is shortly to be waged. The article purports to have been written by one of the oldest and most highly honored members of our profession. The virtues of alcohol are lauded and the action of the House of Delegates at the last annual session of the American Medical Association on the question of the use of alcohol is criticized as is also the position of other scientific and philanthropic organizations. Congress is censured and even the President criticized. It is evident that the pamphlet has been sent broadcast among physicians for the purpose of overcoming the effect of the action of the House of Delegates. The statements made in this article are not supported by up-to-date knowledge of the physiologic and therapeutic action of alcohol, and the arguments advanced are fallacious. The paper seems to be the expression of a personal opinion based on preconceived ideas which are contradictory to the opinions held by advanced thinkers and workers in the medical profession.

On the first page of the pamphlet appears the likeness of the venerable physician who is credited with being the author. Possibly, if they see only this likeness and read no more than the caption, the impression which those who circulate the booklet desire to produce may be made on the minds of certain time-pressed medical men. But any of those who stop to consider the article will not be misled into thinking that there still remains a word in favor of old King Alcohol. The circulation of the article seems to indicate that manufacturers and investors whose business is at stake are making a desperate effort to stem the tide of popular indignation against the use of alcohol. With the realization that millions of bushels of food-producing creals have been diverted from their use as a food for the manufacture of a worse than useless luxury, the public has been aroused to an appreciation of the situation and is clamoring for this grain to be used to feed the starving people of Europe and to relieve the growing food shortage here.

The medical profession, after careful scientific study, has come to appreciate the facts concerning alcohol and knows it to be a determining factor in estimating the increase in insanity, moral degradation, disease and crime. Social workers and religious teachers have shown the impossibility of accomplishing reform while the rum demon is abroad. It must be eliminated. Evan O'Neill Kane, M.D., Kane, Pa.

To the Editor:—I am enclosing a pamphlet, recently received by me, and similar copies may have been sent to all the physicians in the United States, including yourself, "Compliments of" whom, not divulged.

I cannot refrain from protesting against both the motive for sending such an article, and also the attempt to create the impression that the leading physicians of the United States sanction such assertions as it contains. I have practiced long enough to learn the evil effects of so-called continued moderate use of alcohol, on the recuperative powers in sickness and accidents, both in young and aged persons. I am aware of the reasons why alcohol is forbidden to athletes in training; why members of big corporations believe better work and fewer accidents are obtained by selecting workmen who do not use it; why a large percentage of crimes is laid to the influence of alcohol intake, thus filling our jails and asylums, for which the people are being taxed; why the laboring class would better itself and families by leaving alcohol alone; why better work has been done by the big armies by excluding or restricting its use; why its influence is always degrading.

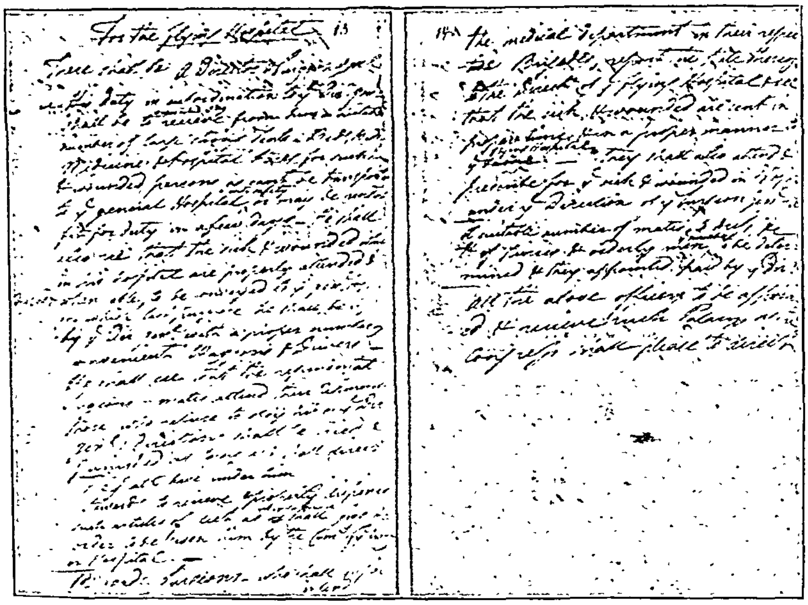
It is not a question of treating a few sick persons; it is a broader, unselfish economic question, involving millions of people. Consequently, I believe I am only one of a large number of physicians who stand ready to sacrifice alcohol for other stimulants and drugs, for the uplift of humanity.

Charles E. Hawkes, M.D., Providence, R. I.

ORIGIN OF THE FLYING HOSPITAL

To the Editor:—In view of your editorial, "Larrey the Originator of Rapid Evacuation of the Wounded" (The Journal, Sept. 29, 1917, p. 1084), the enclosed copy of the scheme written by William Shippen and John Cochran, both of whom were at a later date Surgeons-General in the Army of the Revolution, and in the handwriting of William Shippen, may be of interest to you. This appears in No. 22, folio 9, papers of the Continental Congress, and was transmitted to Congress by Washington, Feb. 14, 1777, and was reported on by the committee, Feb. 24, 1777. It is of decided interest, showing as it does where the "flying hospital" originated. I can find no record that this scheme was actually enacted into a law or of its having been in use in the Continental Army, but it was suggested by William Shippen in 1777 and was a matter of record before the Continental Congress in the handwriting of William Shippen of that date.

W. O. Owen, M.D., Washington, D. C.



Plan for flying hospital as written by William Shippen in 1777.

FOR THE FLYING HOSPITAL

There shall be a Director & Surgeongenl whose duty in subordination to y-e Dir.-r genl shall be to superintend & reg. receive from him a suitable number of large strong Tents—Beds, Bedding, Medicine & Hospital Stores for such sick and wounded persons as cant be transported to y-e general Hospital with safety or may be rendered fit for duty in a few days.—He shall also see that the sick & wounded while in his hospital are properly attended & dressed & when able, to be conveyed to y-e gen-l Hospital for which last purpose he shall be supplied by y-e Dir. gen.-l with a proper number of convenient Waggons & Drivers.—He shall see that the regimental Surgeons and mates attend their regiments; those who refuse to obey his or y-e Dir. gen-l's directions shall be tried & punished as Congress shall direct.

He shall have under him Stewards to receive & properly dispense such articles of diet as ye Director General shall give or order to be given him by the Com-y of y-e Army or Hospital.—

Brigade Surgeons who shall superintend the medical department in their respective Brigades, report the State thereof to the Direct-r of y-e flying Hospital & see that the sick & wounded are sent in proper time & in a proper manner to y-e flying hospital. They shall also attend & prescribe for y-e sick & wounded in y-e Hospital under y-e Direction of y-e Surgeon Gen-l of a suitable number of mates to dress. &c & of Nurses and orderly men y-e number to be determined & they appointed & paid by y-e Dir-r., all the above officers to be appointed & receive such Salarys as the Congress shall please to direct.

BELGIAN AND FRENCH PHYSICIANS' FUND

To the Editor:—I append the list of subscriptions which I have received (all of them in cash, up to the present time) for transmission to our Belgian and French colleagues to help in reestablishing themselves in their homes and offices. I hope that this sum may be increased above $1,000 and shall hold it for a short time in the hopes that it may reach a considerably larger sum.

When one remembers the number of physicians in these devastated districts and their utter destitution of everything for home and office or practice, $1,000 will go but a very little way in helping a very few.

SUBSCRIPTIONS IN CASH

Dr. Frederick C. Shattuck, Boston	$ 50.00
Dr. Richard Dewey, Wauwatosa, Wis.	10.00
Dr. Richard Lewisohn, New York	50.00
Dr. W. W. Keen, *Philadelphia*	100.00
Dr. Joseph Walsh, Philadelphia	10.00
Dr. J. T. Foley, Lewiston, Mont.	25.00
Dr. Helen C. Putnam, Providence, R. I.	100.00
Dr. J. J. Winn, Norwood, Ohio	10.00
Dr. L. H. Finch, Amsterdam, N. Y.	10.00
Dr. Maud J. Frye, Buffalo	5.00
Dr. Glennis E. Humphrey, Cambridge Springs, Pa.	5.00
Dr. R. O. Raymond, Flagstaff, Ariz.	15.00
"A Friend," Keystone, W. Va.	10.00
Dr. H. Gifford, Omaha	500.00
"A Friend," New York	10.00
Dr. George H. Simmons, Chicago	10.00
	$920.00

Besides these gifts of money I have received from several of those in the list gifts of instruments, some of them of very considerable value. I have also received from a friend in New York an eight plate static electric machine, and from two friends, a man and a woman, both of Plymouth, Mass., a considerable number of valuable instruments.

To any friends who wish to send instruments and other appliances I must suggest that if the apparatus or instruments require repairs, it would be necessary to have these done in this country as the means for repairs, I am told on good authority, are almost universally lacking. The polishing and sharpening I would suggest should not be done in this country, for it can be done much more cheaply abroad and also will give occupation to some of the disabled soldiers themselves.

I have also to acknowledge the great kindness of Charles Lentz & Sons of this city for listing and packing many of these instruments.

W. W. Keen, M.D.,
1729 Chestnut Street, Philadelphia.

THE MORAL OBLIGATION OF THE MEDICAL INTERN TO THE HOSPITAL

To the Editor:—For some years it has seemed desirable that hospitals throughout the country establish among themselves a rule of ordinary decorum relating to applications for appointment to hospital internships. It is notoriously the fact that with few exceptions the recent graduate in medicine has little regard for the contract he makes with the hospital authorities. Very commonly capital is made of the prestige acquired by a hospital appointment in the securing of one elsewhere. An energetic canvasser during his two weeks' summer holiday may "come up" with several good things, as he describes them, and secure options for his friends. He may decide not to come back at all after his vacation and lend himself as a decoy to secure a bevy of interns for his new employer. He will write back to the fellows at his "dear old Alma Mater" and assure them he can fix them. Any curtailment of privileges involved in ordinary hospital staff discipline will furnish cause for a one sided abrogation of his contract and lead to his taking advantage of the offer from another hospital which is at that moment in his pocket.

Among respectable people, it is not customary to dicker with a neighbor's employees, to entice them with promises of better wages, better food, better housing, better opportunities or improved social surroundings. There is no such delicacy on the part of the average hospital management. The restless intern of another hospital will be gathered in without a question. He is not required to have a "character" but is taken on his looks, and without any solicitude as to a proper release from his previous contract.

It is suggested that hospital officials would improve their own morale and that of successive groups of young professional men by establishing among themselves a simple code by which to discourage the unfortunate laxity of professional obligation and duty which in that particular they now condone.

William F. Lockwood, M.D., Baltimore.

THE VENEREAL DISEASES

To the Editor:—In The Journal that has come to me this morning, as well as those of the past weeks, I have read the article under the caption "The Venereal Diseases." Kindly accept my congratulations for your continued discussion of a subject which is of vital interest to every physician and, we must admit, altogether too little understood.

I feel compelled to take exception to a most egregious error which has been published in the serial article of October 6. On page 1171 there occurs the statement that "when other methods fail to relieve tenesmus and pain [in acute posterior gonorrhea], remarkable relief is occasionally obtained by the instillation of a few drops—about ten—of a 1:500 to 1:100 solution of silver nitrate through a soft catheter or deep urethral syringe," etc.

It is admitted later on in the article that such a procedure is "contrary to the principles" of the treatment of acute posterior gonorrhea, and it is cautioned that such should be employed only as "a last resort." The introduction of any instrument into a urethra acutely infected with the gonococcus should be absolutely and emphatically forbidden without exception. Such a procedure is always attended with a high probability of the production of an epididymitis or some other equally serious complication, and should never be attempted.

Further than that, 1 per cent. of silver nitrate injected into even a normal posterior urethra is always followed by more or less annoying tenesmus—the very condition that one attempts to relieve by such an instillation.

James C. Sargent, M.D., Milwaukee.

AN APPEAL FOR WOMEN ON HOSPITAL STAFFS

To the Editor:—In the midst of the urgent appeals on the one hand for more physicians for the Army, and on the other hand the equally urgent appeals not to weaken our medical forces at home, I am moved to ask why the women physicians are not being utilized to fill in the broken ranks and to prevent in a large measure the crippling of our hospitals.

The need for physicians that exists in the warring countries makes its appeal to every man of red blood: and to every woman too. But the men can respond by going; the women cannot.

The war office in Washington refuses the women passports, refuses the offers of well-equipped units, refuses at every turn to avail the government of their services in any way, so that the fact that our medical women are not allowed to take part in the defense of their country cannot in any way reflect on themselves.

In this war, however, in which only the fullest use of all our resources will work toward the ultimate success of our arms, we cannot afford longer to ignore that body of trained women which stands ready to do its part. With the same training and the same license to practice as our medical men, they can be depended on to safeguard the health of the community and by so doing loose the bonds that prevent every man of proper age from springing to his country's call.

Even in conservative England many of the largest London hospitals have women on their staffs, and Sir Alfred Keogh, Surgeon-General of the British Army, in a recent communication to this country says, "Do not underestimate the value of the women physicians; their assistance has been invaluable."

Eoline C. Dubois, M.D., Springfield, Mass.

REST FROM VOCALIZATION IN THE TREATMENT OF LARYNGEAL TUBERCULOSIS

To the Editor:—From time to time articles appear in the journals on the treatment of laryngeal tuberculosis, and it seems strange that so little importance is attached to total nonuse of the voice. In fact, authors generally seem to take it for granted that partial or complete rest will be required; but even so eminent an authority as Ballenger does not even mention it in his textbook. In my experience, absolute rest from phonation has produced far better results than any local applications. In an article on "Rest in the Treatment of Laryngeal Tuberculosis" read before the American Laryngological Association in 1905 (*Tr. Am. Laryngol. Assn.*, p. 149; *Am. Jour. Med. Sc.*, 1905, **131**, 300), stress was laid on the necessity for absolute rest in the successful treatment of this intractable malady. Since then cases have been reported in which the larynx was rested from three to eighteen months with most gratifying results. It has been my custom to demand from every patient consent for absolute rest before undertaking the care of tuberculous cases. Tuberculomas, ulceration, etc., usually form only in the later stages of the disease, and the systemic infection is usually so great by that time that but little hope of success may be expected from any form of treatment. Even then, however, absolute rest with anodyne applications will give more relief than curettage, epiglottectomy or the application of the galvanocautery. It seems, therefore, that absolute rest from phonation should be required in all cases and at all stages irrespective of any other measures that may be instituted.

W. Peyre Porcher, M.D., Charleston, S. C.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

SALKOWSKI-KOJO TEST FOR COLLOIDAL NITROGEN IN THE URINE

To the Editor:—In The Journal, Sept. 15, 1917, p. 941, you refer to the Salomon-Saxl test, with which I am familiar; also to the Salkowski-Kojo test with which I am not familiar. What is the latter, or where can I find it?

C. H. Walker, M.D., New York.

Answer.—In the article summarized on page 941, Kahn states that Salkowski and Kojo have recently (1910) suggested several methods for determination of the colloidal nitrogen in the urine, and in 1911 Kojo published (*Zeitschrift für physiologische Chemie*, 1911, **73**, 416) the results of a comparative study of the various procedures suggested in this connection. Kahn tabulates the findings in 128 cases, including twenty-two healthy persons and fifty-nine with cancer, tested by the Salomon-Saxl method and for the colloidal nitrogen. The technic used for the latter he describes as follows: "The urine was first tested for coagulable protein which, if found, was removed by means of heat coagulation, with addition to the boiling liquid of a few drops of dilute acetic acid. To 100 c.c. of a mixed, filtered, twenty-four hour specimen of urine, zinc sulphate was added in sufficient quantity to effect saturation. The saturated liquid was allowed to stand for twenty-four hours, then filtered through ashless paper, and the precipitate washed several times on the paper with saturated zinc sulphate solution to remove nitrogenous substances adherent to the precipitate. The paper and precipitate were then placed in a Kjeldahl flask and the nitrogen content determined by the Kjeldahl method. The total nitrogen in 5 c.c. of urine was also determined by the Kjeldahl method. The ratio of the nitrogen in the zinc sulphate precipitate to the total urinary nitrogen was computed." In the healthy the nitrogen value for the zinc sulphate precipitate, as compared with those for total nitrogen, varied from 1.25 to 2.15, with an average of 1.67 per cent. In the fifty-nine cancer cases the range was up to 5.75 per cent. of the total nitrogen, the minimum being 3.4 per cent. Fifty-eight of the fifty-nine cases of cancer gave a positive Salomon-Saxl reaction.

SURGICAL AND MEDICAL INCIDENTS IN THE BIBLE

To the Editor:—I am asked to give a talk on the surgical and medical incidents found in the Bible from a modern standpoint. Kindly refer me to some literature that will help me in preparation.

Eugene A. Hensel, M.D., San Diego, Calif.

Answer.—We may refer you to the following articles:

Allen, D. B.: Diseases Mentioned in the Bible, *Dietet. and Hyg. Gaz.*, 1908.
Blakely, S. B.: Medicine of the Old Testament, *Sc. Am. Supp.*, July 31, 1915; Aug. 7, 1915.
Blakely, S. B.: The Medicine of the Old Testament, *Med. Rec.*, New York, 1915, **87**, 934.
Mendelsohn, S.: The Arterial Function and the Circulation in Ancient Rabbinic Literature, *Charlotte Med. Jour.*, 1915, **71**, 269.
Lamb, D. S.: The Old Hebrews, a Medieval and Sanitary View, *Med. Pickwick*, 1915, **1**, 372.
The Medical Language of the Third Gospel, *Lancet*, London, 1911, **1**, 44, 331.
Spivak, C. D.: An Anatomic Prayer, The Journal, Sept. 30, 1916, p. 1037.
One Minute Biographs, The Journal, Jan. 9, 1915, p. 151.
Field, D: Medical Facts Gleaned from the Holy Scriptures, *Therap. Rec.*, 1909, **4**, 30, 62, 84.
Peters: Die Pathologie der Bibel, Med. Woche, 1907, **8**, 552, 562, 574.
Murphy, H. B.: Biblical Medicine and Hygiene, *Montreal Med. Jour.*, 1908, **37**, 83.

MAKING WATER SAFE FOR DRINKING PURPOSES

To the Editor:—In an irrigated district where drinking water can be had only from cisterns filled from irrigating ditches, what is the best method of rendering the water safe for drinking purposes? Assuming that chemicals are to be used, what is the highest harmless concentration, the lowest effective? What is the most effective way to remove or precipitate fine silt?

Please omit my name.

O. B. L.

Answer.—Chlorinated lime is most generally used for sterilization of drinking water, 1 part of available chlorin per million being sufficient (The Journal, Jan. 27, 1912, p. 279). Recently halazone tablets have been proposed for water disinfection (The Journal, Oct. 6, 1917, p. 1166). Very full description of water purification methods are given in "Water Purification Plants and Their Operation," by Milton F. Stein, John Wiley and Sons, New York, 1915. The book contains excellent diagrams and accurate data as to amount of coagulent to be used, cost of operation, etc. Good general information on water supplies may be found in "Clean Water and How to Get It," by Allen Hazen, John Wiley and Sons, 1914.

OCHSNER'S SOLUTION

To the Editor:—Kindly give the ingredients and their proportions in Ochsner's solution.

A. P. H.

Answer.—Ochsner's solution consists of phenol (carbolic acid), 0.5 per cent.; aqueous saturated solution of boric acid, 66 per cent., and alcohol, 33 per cent.

Familial Polyadenomatosis in the Rectum.—A. Oidtmann has encountered eight cases of this kind, and six of the patients belonged to two families, three sisters in one family, and mother, son and daughter in the other. One of the three sisters succumbed to hemorrhages; the others were cured by resection of the protruding bunches. The *Nederlandsch Tijdschrift voor Geneeskunde* publishes his report in Society Proceedings, 1917, **1**, 2184, with illustrations, and references of nine other families showing from two to six cases of polyadenomatosis. A cancerous tendency was evident in eight of the total twenty-seven cases in this group, and in all but three of Oidtmann's own eight cases.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 13-14. Sec., Dr. T. J. Stout, Brinkley.

Arkansas: Eclectic: Little Rock, Nov. 13. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

Connecticut: New Haven, Nov. 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

Connecticut: Homeopathic: New Haven, Nov. 13. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Eclectic: New Haven, Nov. 13. Pres., Dr. J. W. Fyfe, Saugatuck.

Maine: Portland, Nov. 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

National Board of Medical Examiners: Chicago, Oct. 10-18. Sec., Dr. J. S. Rodman, 2106 Walnut St., Philadelphia.

Nevada: Carson City, Nov. 5. Sec., Dr. S. L. Lee, Carson City.

New Jersey: Trenton, Oct. 16-17. Sec., Dr. Alexander MacAlister, 438 E. State St., Trenton.

South Carolina: Columbia, Nov. 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Dallas, Nov. 20-22. Sec., Dr. M. F. Bettencourt, Mart.

West Virginia: Clarksburg, Nov. 21-23. Chairman, Dr. S. L. Jepson, Capitol Bldg., Charleston.

Medical Colleges of the United States Recognized in Canada

A report received from the Medical Council of the College of Physicians and Surgeons of Ontario states that in June, 1917, the following medical schools of the United States were given recognition:

Leland Stanford Junior School of Medicine, San Francisco.
University of California Medical School, San Francisco.
Yale University School of Medicine, New Haven.
Northwestern University Medical School, Chicago.
Rush Medical College, Chicago.
Indiana University School of Medicine, Indianapolis.
Johns Hopkins University Medical Department, Baltimore.
Harvard University Medical School, Boston.
University of Michigan Medical School, Ann Arbor.
University of Minnesota Medical School, Minneapolis.
Washington University Medical School, St. Louis.
University of Nebraska College of Medicine, Omaha.
Columbia University College of Physicians and Surgeons, New York City.
Cornell University Medical College, New York City.
Syracuse University College of Medicine, Syracuse.
Ohio State University College of Medicine, Columbus.
Western Reserve University School of Medicine, Cleveland.
Jefferson Medical College of Philadelphia.
University of Pennsylvania School of Medicine, Philadelphia.
University of Pittsburgh School of Medicine, Pittsburgh.

The report states that graduates of the above schools, under certain limitations, will be permitted to take the examination for the license to practice medicine in Ontario. An extract from the regulations is as follows:

"Students graduating subsequent to July 1, 1916, from 'recognized' medical colleges in any of the United States shall submit a certificate from that state board of licensure that the candidate is fully qualified for admission to the examination of that state board. Certificates will be accepted from state boards (1) which accept similar certificates from this Council and (2) whose standards are equivalent to those of this Council."

Washington January Examination

Dr. C. N. Suttner, secretary of the State Board of Medical Examiners of Washington, reports the written examination held at Spokane, Jan. 2-4, 1917. The examination covered 11 subjects and included 110 questions. The percentage required to pass was 75. Thirty-four candidates were examined, of whom 27 passed, including 5 osteopaths, and 7 failed, including 2 osteopaths. The following colleges were represented:

PASSED	Year Grad.	Total No. Licensed
College	(1916)	1
George Washington University	(1900)	1
American Medical Missionary College	(1912) (1914)	2
Northwestern University	(1915)	1
Rush Medical College	(1914) (1915) (1916)	3
University of Illinois	(1913)	1
Drake University	(1904)	1
Hospital College of Medicine, Louisville	(1916)	1
University of Michigan Med. School	(1916)	1
University of Minnesota		
National University of Arts and Sciences	(1916)	1
John A. Creighton Medical College	(1912)	1
Jefferson Medical College	(1911) (1913) (1915)	3
Woman's Medical Coll. of Pennsylvania	(1909)	1
Nagasaki Special Medical School	(1903)	1
Nippon Special Medical School	(1912)	1
Okayama Special Medical School	(1901)	1
Sai Sei Medical College, Tokyo	(1904)	1
FAILED		
University of Louisville	(1912)	1
Saginaw Valley Medical College	(1902)	1
Barnes Medical College	(1905)	1
Kyushu Imperial University	(1913)	1
Nippon Special Medical School	(1912)	1

Medicolegal

Illegal Prescribing of Intoxicating Liquor

(City of Seattle vs. Hewetson (Wash.), 164 Pac. R. 234)

The Supreme Court of Washington affirms a conviction of the defendant, a licensed physician, who was charged with having issued a prescription for whisky, without having any good reason to believe that the person to whom it was issued was actually sick, or that the liquor was required as medicine. The court says that the evidence showed that the defendant had an office in the back part of a room occupied by a drug store. That the office could be entered by a door from the portion of the building used for the drug store. That on the evening of Feb. 19, 1916, the complaining witness went to the defendant for the purpose of getting a prescription for liquor. That he entered through the drug store, found seven or eight persons standing in line, waiting for similar prescriptions, and, when his turn came, said to the defendant that he had a cold, or a bad cold. That thereupon the defendant inquired of him if he would like a little stimulant, to which he replied, "Yes." That before receiving the prescription he was required to sign a statement as follows: "I, the undersigned, do declare that the prescription written for me by Dr. J. W. Hewetson for intoxicating liquor, on this date is for medical purposes; that I am sick and in need of medicine, and will take the same according to directions. Dated this 19th day of February, 1916. M. W. Palmer, 135 N. 75th St." That there was no examination of the complaining witness as to his physical condition. The evidence further showed that the record book and the prescription file at the drug store disclosed that, February 19, 164 prescriptions for liquor had been filled; February 18, 103; February 17, 105, and February 16, 83—and that most of these prescriptions had been written by the defendant. It was admitted, on the trial, that any one "could get a prescription for intoxicating liquor unless he refused to sign one of these statements," and that the defendant had "for the past two years written prescriptions free of charge." There was also some evidence as to the number of persons standing in line, waiting to have prescriptions written, on other occasions than the one above referred to. Under this evidence, and other details that appeared in the testimony, the question whether the defendant had ground to believe that the person to whom he issued the prescription was actually sick, or that liquor was required as medicine, was for the determination of the jury. It could not be held, as a matter of law, on such evidence, that the plaintiff had failed to prove that the defendant, when he issued the prescription for which he was being tried, did not have good reason to believe that the person to whom it was issued was actually sick, and that the liquor was required as medicine. The real issue in such a case is whether the prescription was given in good faith, and, as bearing on this question, the number of prescriptions given by the accused, within a specified time, for intoxicating liquor, to various persons, as found on the file of the druggist, in whose store the defendant kept his office, was competent. The sections of the city ordinance which the defendant was charged with violating were regulative in their nature, and, in passing such an ordinance, the city acted within its power.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Oto-Laryng., Pittsburgh, Oct. 29-30.
Am. Assn. for Study and Prev. of Inf. Mort., Richmond, Va., Oct. 15-17.
American Association of Railway Surgeons, Chicago, Oct. 17-19.
Amer. Public Health Association, Washington, D. C., Dec. 4-7.
Clinical Congress of Surgeons, Chicago, Oct. 22-26.
Kentucky State Medical Association, Louisville, Nov. 6-9.
Medical Association of the Southwest, Kansas City, Oct. 15-17.
Nevada State Medical Association, Reno, Oct. 18-19.
Southern Medical Association, Memphis, November 12-15.
Virginia State Medical Society, Roanoke, Oct. 23-26.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Thirtieth Annual Meeting, held at Newark, N. J., Sept. 17-19, 1917

The President, Dr. John W. Keefe, Providence, R. I., in the Chair

Fundal Hysterectomy to Reduce the Menstruating Surface

Dr. Gordon K. Dickinson, Jersey City, N. J.: Fundal hysterectomy, done through the vagina, is a simple, safe and effective procedure. After a purse-string has been placed around the anus, a clip is applied to each labium, which is retracted open. Into the vagina is poured an ounce or more of 3.5 per cent. tincture of iodin, which is allowed to remain while the patient is being draped. When everything is ready, a volcellum is put on the cervix and it is brought down. A transverse incision is made anterior to the cervix, the bladder is separated from the uterus, the peritoneal cavity is opened, and the fundus is brought into the vagina. Clips are applied alongside the uterus to compress the circulation slightly and to act as retractors. A V-shaped incision is then made through the substance of the uterus for various depths, depending on the extent of the disease as estimated by the hemorrhage. This is *not* made too close to the fornix because the object is not so much the reduction in size of the uterus as the reduction of the menstrual surface. After this wedge-shaped piece is removed, both fornices should be cauterized thoroughly. If not, they will respond at the menstrual period, and, producing tension, give rise to pain. The cervical portion should also be touched for aseptic reasons. The part removed is carefully inspected for any appearance of malignancy. With a small, sturdy, curved needle the two flaps are approximated, stanching hemorrhage. The peritoneal surface is further brought together by running catgut, the clips are removed, the uterus is pushed back into place, and the anterior colpotomy wound sutured.

DISCUSSION

Dr. Albert Goldspohn, Chicago: Some obstetricians may object to opening the abdomen and cutting the uterus in order to find out what is wrong in it. More efficient work can be done medically to help some of these cases that are not extremely bad. Tincture of iodin applied effectively to the endometrium, say about twice a month, will make it unnecessary to operate in many of these cases. Zinc chlorid will be needed once in a while, and although it is destructive, it will do the work. If zinc chlorid is to be applied well to the endometrium, it is necessary to dilate the cervical canal. The woman will need to have morphin, or the cervical canal must be anesthetized with phenol (carbolic acid) or cocain. Ample dilation is made under a clean technic. The application is made with some kind of syringe applicator, the cervical canal being cauterized extensively, but not the fundus. Then the zinc chlorid is introduced without any difficulty. Treatment of this kind does much more good than any mechanical curettement.

Dr. Hugo O. Pantzer, Indianapolis: To ablate the entire endometrium would inflict unnecessary violence on the sexual function and on the chemism of the whole body, and we should hesitate to use the cautery for the destruction of the endometrium. It is better to remove only a part of the endometrium, as suggested by the essayist. I wonder whether we ought to regard these cases as toxemias due to a focal infection.

Physical Conditions in Women Warranting Sterilization

Dr. E. W. Hedges, Plainfield, N. J.: There are conditions when sterilization will save lives that otherwise would be sacrificed. The operation is indicated when a woman has had eclampsia in two successive labors or when real diabetes exists. Chronic nephritics should never marry or conceive. The same rule applies in cases of pulmonary tuberculosis. Both diseases are aggravated by pregnancy, and a fatal termination is hastened. Patients with bad cases of heart decompensation should not conceive. The vast majority of the children in such cases die in abortion, premature labor or stillbirth, and a third of the mothers needlessly lose their lives. In all the classes of cases mentioned, the children, even if born alive, enter life with a physical handicap, and the risk for the mother is so great that it should be prevented by sterilization. If seen first when pregnancy has commenced, an abdominal hysterotomy and sterilization should be done at the same time. If the child is near viability, an attempt may be made to tide the patient over a short time and then bring on labor. As to pyosalpinx, if the woman is well to do, she should be let alone with a nurse and a fountain syringe and an easy chair; but if she has to earn her living, her tubes should be taken out and her health restored. Persons with certain forms of insanity, the feebleminded and idiots, as well as epileptics, should be cared for in institutions; but if the patient lives at home, the question of sterilization should be considered.

DISCUSSION

Dr. Edward J. Ill, Newark, N. J.: Dr. Hedges has touched on a question that is going to be abused just as much as was the removal of the uterus or the ovaries. The sterilization of women is a legitimate and proper procedure, but we must be careful in the selection of cases. I think we all agree that the state has a perfect right to sterilize epileptics and criminals, the insane and the idiotic, whether male or female. We can also say that patients who have undergone repeated cesarean section should be sterilized. When it comes to cases of chronic nephritis, I am not quite sure that we have a right to sterilize such women. In these days of commercial crazy surgery, it is well worth while to set a limit to what we are going to do in this particular field.

Dr. Herman E. Hayd, Buffalo: Dr. Hedges suggests an omniscience on the part of the surgeon that does not exist. For him to assume that such and such a case of diabetes, and such and such a case of chronic nephritis is going to terminate fatally is unscientific. It is too sweeping, and, moreover, that we should possess surgical qualifications which will enable us to carry these people through this surgical undertaking without a mortality is equally absurd and extravagant. I believe that sterilization would be justifiable in these cases of chronic nephritis and of diabetes, provided these women may die of some unrelieved condition, such as a perforating ulcer of the stomach, a duodenal ulcer, an acute gangrene of the gallbladder, or an acute appendicitis.

Dr. Gordon K. Dickinson, Jersey City, N. J.: I have never had the courage to sterilize women, except for narrow pelves, and when the children cannot be born except by repeated cesarean sections. If we feel the necessity of saving a woman from pregnancy; if, after carefully studying the woman as well as the condition, we think it is wise to sterilize her, we should do so, but not until we try other measures which are well known and which are not surgical.

Dr. Charles L. Bonifield, Cincinnati: Certain conditions have been mentioned which justify sterilization; but the essayist's enthusiasm has carried him beyond the sphere of a private physician. If the state makes laws to prohibit marriage, or to necessitate the sterilization of certain women, we shall, in obeying these laws, be considered good citizens. But my conscience will not permit making a law for myself as broad as the doctor has laid down. I do not believe it is within the province of the physician, in some of these conditions, to place a woman so that she cannot become pregnant. If she should not become pregnant, it is the physician's duty to tell her and her husband so, and then they must decide what shall be done.

Dr. Robert T. Morris, New York: Dr. Hedges' paper is all right, but it requires elaboration. I would not think of sterilizing a woman for diabetes until I had ascertained the cause of her diabetes. We must remember that diabetes is not a disease but a symptom. As to tuberculosis, more than 50 per cent. of the people in all the civilized world have had evidences of this disease of one sort or another during some stage of their lives. In tuberculosis of the lungs, advancing and uncontrolled, I would say, sterilize the woman.

Dr. William E. Darnall, Atlantic City, N. J.: I do not believe that Dr. Hedges meant to say that sterilization should be performed in every one of the cases he enumerated, but I do believe there are patients in each one of these classes that should be sterilized. After a thorough study of the case of the woman and her tendencies, there may be found in each class some women who need to be sterilized.

Dr. E. W. Hedges, Plainfield, N. J.: If a woman presented anasarca, rapid heart, dyspnea and extreme symptoms of poisoning from chronic nephritis, I would not hesitate to sterilize her. When the textbooks tell us that 30 per cent. or more of mothers that become pregnant under conditions of chronic nephritis die, we are warranted in advocating sterilization of such women to save life.

Operation for the Cure of Complete Perineal Laceration

Dr. Edward J. Ill, Newark, N. J.: I make an H-shaped incision which extends from just inside Bartholin's duct down to the outer side of and behind the ends of the sphincter. The horizontal bar of the H starts above the end of the sphincter and continues across the vaginorectal junction. The anterior and posterior flaps are elevated, particular care being exercised to denude the ends of the sphincter. Submucous suture of the rectum by a double line of fine plain catgut is done. The catgut never touches the rectal mucous membrane. Deep silver wire perineal sutures are used, and the vagina is sutured with plain catgut.

Prolapse of the Uterus

Dr. Charles L. Bonifield, Cincinnati: Recognizing how and why prolapse has occurred, the rational treatment is to decrease the weight of the uterus, replace it in its normal location and attitude and relieve it of all its abnormal burdens. The weight of the uterus may be decreased by rest in bed, curettage and amputation of the cervix, which is always hypertrophied in these cases. The uterus may be held in its normal place and attitude by a Gilliam operation, or, if the patient has passed the child-bearing period, by a ventral suspension, which is a little more easily and quickly done. The uterus may be relieved of other burdens by the proper operations on the posterior vaginal wall and perineum and the anterior vaginal wall. Some surgeons do not like to take the time necessary to perform the surgical steps that result in an anatomic and physiologic cure of these cases. If the operator is determined to be very deliberate about his work, there is no reason why the operation should not be divided into two steps. It is better to restore a woman to her normal condition by an operation that requires time and care for its execution, than to mutilate her with one that seems more brilliant and can be done in less time.

Operative Treatment of Procidentia

Dr. Arthur T. Jones, Providence, R. I.: In the selection of an operation we must take into consideration the age of the patient, whether the woman is still in the child-bearing period and capable of becoming pregnant. No operation which does not permit of pregnancy and the patient carrying her child to term should be performed on a woman still within the child-bearing age. If it is necessary to remove the uterus, the vagina and cervical stump may be suspended so as to prevent further prolapse of the vagina and cervix. No operation for procidentia is satisfactory which does not include the proper vaginal and perineal work, as support is needed below in conjunction with any suspension or interposition operation. In women still within the child-bearing period, without complications or disease of the appendages, the Alexander operation, in connection with proper vaginal work, has proved very satisfactory in my hands. In women past the menopause, the interposition operation of Watkins-Wertheim has given greater satisfaction than any other method.

Preeclamptic Cesarean Section

Dr. John Wilson Poucher, Poughkeepsie, N. Y.: When a patient at or approaching term, in spite of all means of elimination, shows by nervousness, sleeplessness, severe headaches, high blood pressure, edema and excessive albuminuria that convulsions are imminent, she should be delivered at once by the method that will cause the least delay, produce the least shock, and give both mother and child the best chance for recovery. Since 1914 I have done seven preeclamptic cesarean sections. All seven mothers and eight children survived. Two were operated on after labor had begun, five before the beginning of labor. Two suffered postpartum convulsions, two having two convulsions, the other one convulsion, which were easily controlled.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Anatomy, Philadelphia

September, XXII, No. 2

1 Behavior of Cross Striated Muscle in Tissue Cultures. W. H. Lewis and M. R. Lewis.—p. 169.

2 *Studies on* Mammary Gland. Fetal Development of Mammary Gland in Female *Albino* Rat. J. A. Myers, Minneapolis.—p. 195.

3 Existence of Typical Oestrous Cycle in Guinea-Pig; Study of *Its Histologic and Physiologic Changes.* C. R. Stockard *and* G. N. *Papanicolaou,* New York.—p. 225.

4 Study of Intercalated Disks of Heart of Beef. H. E. Jordan and *J.* B. *Banks.*—p. 285.

American Journal of Physiology, Baltimore

September, XLIV, No. 2

5 Study of Clotting of Plasma of Frog's Blood and *Transformation* of Clot into Fibrous Tissue. G. A. Baitsell, New Haven, Conn. —p. 109.

6 *Volume of* Blood During Hibernation and Other Periods of Year in Woodchuck (Marmota Monax). *A. T. Rasmussen and* G. B. Rasmussen, *Minneapolis.*—p. 132.

7 *Relation of Rate of Spontaneous Liberation of Epinephrin to Rate of Blood *Flow* Through the Suprarenals. G. N. Stewart and J. M. Rogoff, Cleveland.—p. 149.

8 *Effect of Varying Calcium and *Potassium* Content of *Perfusion* Fluids on Vagus Inhibition. B. M. Brine, New York.—p. 171.

9 **Action of Epinephrin on* Blood. M. L. Menten, Chicago.—p. 176.

10 *Effect of Accumulation of Carbon Dioxid *on* Tidal Air and on H-Ion Concentration of Arterial Blood in Decerebrate Cat. R. W. Scott, Cleveland.—p. 196.

11 Skin of Catfish (Amiurus Nebulosus) as Receptive Organ for *Light.* A. P. Van Heusen.—p. 212.

12 *Effects of Epinephrin on Distribution of Blood. Venous Discharge from Thyroid Glands. R. E. L. Gunning, Chicago. —p. 215.

13 *Physiology of Stomach; Hunger and Apetite in Fever. J. Meyer and A. *J.* Carlson, Chicago.—p. *222.*

14 *Id. Influence of Experimental Ulcers *of* Stomach and Duodenum *on Hunger* Contractions of Empty Stomach. *J.* R. Dundon, *Chicago.*—p. 234.

15 Genesis and Inhibition of Extensor Rigidity. S. Cobb, A. A. Bailey and P. R. Holtz, Baltimore.—p. 239.

7. Effect of Blood Flow on Liberation of Epinephrin.—It it shown by Stewart and Rogoff that within the limits of error *of the method used for the assay* (rabbit intestine and uterus segments) the concentration of epinephrin in the suprarenal vein blood collected from a cava pocket varies in *different samples from the same animal inversely* as the rate of blood flow through the glands during the period *of* collection, the rate of output of epinephrin per minute being constant under *the* experimental conditions for a considerable range of blood flow. The rule fails, of course, *when* the rate of blood flow is diminished below *the value* at which the *concentration* of epinephrin has reached the possible maximum. For this reason determinations of the rate of spontaneous liberation of epinephrin by assays *on* drawn suprarenal vein blood should be made on samples obtained with a rate of flow well above this limiting value.

8. **Effect of Calcium on Vagus Inhibition.**—Brine found that calcium-free solutions or solutions with a very small percentage of calcium do not interfere with vagus activity, contrary to results previously reported.

9. **Action of Epinephrin on Blood.**—Blood from the suprarenal vein of a dog, diluted to 10 per cent., 6.6 per cent. and 5 per cent. with normal saline, Tyrode's solution or dog's serum in which the dissolved oxygen is kept at a minimum, shows spectroscopically intensification of the oxyhemoglobin bands. Spectra obtained when epinephrin (base) is added to diluted venous blood are identical with those given by suprarenal vein blood similarly diluted. Venous blood to which epinephrin is added or suprarenal vein blood forming an increase of oxyhemoglobin when diluted show in from one to five hours, if the oxygen dissolved in the dilution medium be minimal, a transformation of the oxyhemoglobin into urobilin. Addition of epinephrin to diluted human venous blood causes an increase in the intensity of the oxyhemoglobin absorption bands. The possible physiologic significance of these reactions for the heart and lungs in the living organism is discussed by Menten.

10. **Carbon Dioxid Acidosis.**—The definition that acidosis is a condition in which there is an actual increase in the H-ion concentration of the blood, Scott says, is the only one that is sufficiently comprehensive.

12. **Effect of Epinephrin on Blood Flow in Thyroid.**—Experiments made by Gunning showed that epinephrin in all dosages produces vasoconstriction in the thyroid gland. There is a slight tendency to overrecovery in the outflow, due supposedly to vascular fatigue. The threshold is lower than in any other organ so far studied. In no case was primary dilatation observed. The literature seems to support the apparent paradox that an increased secretory activity of the thyroid is accompanied by vasoconstriction.

13. **Hunger and Appetite in Fever.**—There is an absence of hunger contractions and a lowering of the stomach tonus during fever in dogs when the temperature reaches 103 F. and above; this being especially true in the temporary fevers. The temperature elevation itself is a factor in the depression of the stomach tonus and an inhibition of hunger contractions. The splanchnic nerves do not appear to be involved in the inhibition. The fever or the toxins appear to induce a lowering of vagus tone, and this leads to a cessation of the hunger contractions. But the authors do not believe that this will account for absence of hunger during a fever lasting ten to twenty days. Bacterial toxins, namely, B. paratyphoid toxin, B. prodigiosis, tetanus and diphtheria toxin, sodium nucleate, have no direct action on the contractions of stomach musculature, particularly of pyloric strips. Starvation does not induce fever in new-born pups.

14. **Experimental Ulcers and Gastric Hunger Contractions.**—In three out of four dogs with ulcers in the duodenum or the pyloric end of the stomach the motility of the empty stomach was greater than normal. But this augmentation of the gastric hunger contractions was not sufficiently marked to account for the excessively painful character of these contractions in ulcer patients. It is therefore probable, says Dundon, that the hunger pains in gastric and duodenal ulcers in man are not due to excessive hunger contractions, but to hyperexcitability of the sensory nerves in the stomach wall, as suggested by Carlson. The effects of gastro-enterostomy on the gastric hunger contractions are variable, with a tendency to depression. The hypomotility, when present, may be due to valve-like action of the intestine opposite the stoma causing retention of the food in the duodenum and hence a reflex inhibition of the stomach from the duodenum as well as regurgitation through the stoma.

American Journal of Roentgenology, New York

September, IV, No. 9

16 Congenital Absence or Defects of Bones of Extremities. P. Lewin, Chicago.—p. 431.
17 Roentgenotherapy of Peripheral Tuberculous Adenopathy. E. Albert-Weil, Paris.—p. 449.
18 Localization of Foreign Bodies. L. G. Cole, New York.—p. 455.
19 Roentgen Diagnosis of Pulmonary Tuberculosis. H. K. Pancoast, Philadelphia.—p. 462.
20 Roentgen Diagnosis of Polypi of Maxillary Sinuses. C. A. Waters and H. P. Doub, Baltimore.—p. 470.
21 Standard Tintometer for Sabouraud's Pastilles. D. Corbett, London.—p. 472.
22 Case of Cardiospasm Resembling Malignant Stricture of Esophagus. J. S. Derr, Atlanta, Ga.—p. 477.

American Review of Tuberculosis, Baltimore

September, I, No. 7

23 Experimental Tuberculosis of Rabbit's Liver: A Study of Immunity. W. B. Soper, Saranac Lake, N. Y.—p. 385.
24 Reaction of Local Tubercle. Method for Determining Value of Indirect Therapeutic Agents in Tuberculosis. H. J. Corper, Chicago.—p. 407.
25 *Gold Therapy of Tuberculosis. L. M. DeWitt, Chicago.—p. 424.

25. **Gold Therapy of Tuberculosis.**—DeWitt's work on the gold therapy of tuberculosis has extended over two years and was carried on practically exclusively on tuberculous guinea-pigs. She began her experiments with the ordinary gold cyanids, $AuK(CN)_2$, $Au(CN)_3$ and $AuCN$. Her results show that life was not prolonged and the disease was not checked as compared with the control animals. The average duration of the disease in the untreated controls was considerably longer than in the treated animals. The extent of the disease in the two set of animals was also about the same. The gold was administered by intracardiac, intramuscular and subcutaneous injections at intervals, with feeding of the gold salt on all days when there was no injection. The subcutaneous injections caused considerable necrosis and the intracardiac were by no means without danger; and the treatment apparently had no beneficial effect on the progress of the disease.

Archives of Pediatrics, New York

August, XXXIV, No. 8

26 *Seven Years of Clinical and Laboratory Experience with Meningitis in New York City. P. L. Du Bois and J. B. Neal, New York.—p. 561.
27 Poliomyelitis; Analysis of Sixty-Three Cases. W. L. Carr, New York.—p. 591.
28 Macroscopic and Microscopic Findings in Poliomyelitis. J. H. Larkin, New York.—p. 601.
29 Care and Feeding of Premature Infant: Analysis of Cases. A. Brown, and R. George, Toronto.—p. 609.

26. **Experience with Meningitis.**—This article contains too much meat to be abstracted in its entirety, but the section on treatment may be summarized as follows: Various methods of treating the acute stage of poliomyelitis were tried during the summer of 1916, without very decisive results. The intraspinal injection of epinephrin was endorsed by only a few after it had been used for a short time. The injection of human immune serum was quite extensively tried. Injecting a foreign substance into the slightly inflamed meninges sets up in most instance an acute aseptic meningitis, as is shown both by changes in the spinal fluid, and clinically by an increased temperature, headache, vomiting and rigidity of the neck. It seems possible that this increased inflammatory reaction may tend to accentuate the inflammatory process already existing in the subjacent substance of the brain and cord. That this reaction may be harmful was further borne out by the results of animal inoculation, the treated animals showing a higher mortality and a more rapid death than the controls, in the majority of cases. While great improvement seemed to follow the administration of serum in certain cases, equally great improvement occurred with no serum in at least an equal number of cases. In view of these considerations the physicians of the meningitis division of the New York Department of Health feel that the best treatment of early cases is complete rest, with lumbar puncture for the relief of pressure symptoms, in addition, of course, to general symptomatic and hygienic treatment.

Arkansas Medical Society Journal, Little Rock

September, XIV, No. 4

30 Some of the Most Important Medical Plants Indigenous to State of Arkansas. J. T. Clegg, Siloam Springs.—p. 73.
31 Vaccination. G. A. Warren, Black Rock.—p. 76.
32 Case of Foreign Body in Larynx. R. B. Moore, Little Rock.—p. 77.
33 Amputation of Arm with Razor and Hand Saw. M. S. Alexander, Wirt, Okla.—p. 78.

Boston Medical and Surgical Journal

September 20, CLXXVII, No. 12

34 Hemorrhage During Pregnancy; Accidental, Inevitable, Postpartum. R. L. De Normandie, Boston.—p. 391.
35 *Chronic Valvular Heart Disease in Pregnancy and Labor. F. S. Kellogg, Boston.—p. 398.
36 Technic of Abdominal Cesarean Section; Report of Sixty Cases. R. C. Cochrane, Boston.—p. 410.
37 Bleeding in Pregnancy. R. S. Titus, Boston.—p. 413.
38 Management of Labor. G. P. Twitchell, Greenfield.—p. 419.

35. **Chronic Valvular Heart Disease in Pregnancy.**—The following conclusions are drawn by Kellogg from a study of cases of chronic valvular heart disease in pregnancy and labor. Of pregnant women, 1 to 2 per cent. have chronic endocarditis. Under prenatal care, 15 to 20 per cent. have shown some decompensation, half of these 1 degree decompensation, half 2 degrees decompensation. Cases with stenosis of the mitral valve, with or without insufficiency, are far likelier to decompensate in pregnancy than cases with simple insufficiency. The maternal mortality of chronic valvular disease in pregnancy is 2 per cent. The maternal mortality of cases showing 2 degrees decompensation, requiring induction and 2 degrees decompensation in labor, is 45 per cent. Mitral stenosis is almost always present in fatal cases. Fetal mortality runs from 10 per cent., in a series including all cases, to 40 per cent. in cases with 2 degrees decompensation. Chronic valvular heart disease complicating pregnancy is, in view of these figures, potention of their lives so that they do not again decompensate, and so that they will stand any appropriate method of delivery at term. Many chronic valvular heart cases compensated and with only slight degrees of decompensation and some with 2 degrees decompensation will safely deliver themselves if allowed to. Though this fact is undeniably true, theoretically, and with what data we have at hand, it should not be allowed. Normal delivery and accouchement forcé have no place in the treatment of chronic valvular heart cases in pregnancy or labor. It is not justifiable to attempt to carry a woman who is decompensated to term for the sake of her baby unless she reacts favorably to treatment almost immediately, especially as the fetal mortality in these cases is so high that one overrisks the mother for the sake of a problematic child.

Canadian Medical Association Journal, Toronto

September, VII, No. 9

39 Anesthesia from Commercial Ether Administration and What It Is Due To. J. H. Cotton, Toronto.—p. 769.
40 *Shrapnel Balls. Their Roentgenographic Characteristics, Compared with Bullets and Other Foreign Bodies. A. H. Pirie.—p. 778.
41 *Radical Cure of Inguinal Hernia. F. N. G. Starr.—p. 782.
42 Subconjunctival Epidermal Cyst. J. W. Stirling, Montreal.—p. 785.
43 Complications of Mastoiditis. D. H. Ballon, Montreal.—p. 788.
44 Medical Education in Japan. F. W. Schofield, Seoul, Korea.—p. 796.
45 *Helping to Solve a Prairie Problem. How People of Western Provinces Are Endeavoring to Provide Hospital Accommodation for Rural Sick. D. G. Tuckwell, Lloydminster, Saskatchewan.—p. 800.
46 Ozena Among Various Races of Earth. J. N. Roy, Montreal.—p. 804.
47 Bacteriuria in Some Chronic Diseases with Special Reference to Intestinal Stasis. W. A. Bigelow, H. S. Sharpe and L. J. Carter, Brandon, Man.—p. 810.
48 Report on Spring-Balance Muscle Tests as Devised by Lovett. L. M. Lindsay, Montreal.—p. 815.
49 Case of Erythemia (Vaquez' Disease). R. J. Erickson, Montreal.—p. 817.
50 Fracture in Utero; Pregnancy in *Bicornuate* Uterus; Typhoid. H. H. McNally, Fredericton, N. B.—p. 820.

40. **Roentgenographic Characteristics of Shrapnel Balls Compared with Bullets and Other Foreign Bodies.**—In about a year at a hospital in France where Pirie was in charge of the roentgen-ray department, 241 plates of shrapnel balls and 242 plates of bullets were made. He says that shrapnel balls may be found entire without any deformity, and every stage of deformity may be met with till an appearance is obtained as if the ball had exploded into small particles. There is one entrance wound only, if the ball is entire, and the wound is rather characteristic. If the ball has struck an external object before striking the patient, it may break into two or more pieces, and the wounds of entrance will then be multiple. When the ball passes into the body it remains there. A shrapnel ball rarely passes through the body and comes out at the other side the way a bullet does. When a shrapnel ball meets a bone it becomes deformed according to the resistance offered by the bone, and some of the lead is left behind, on or near the bone. There were two bones only which Pirie found a shrapnel ball cannot penetrate, namely, the femur in its shaft and the vault of the skull.

The contrast between the damage done by a bullet and that done by a shrapnel ball is very marked when a direct hit is made on the femur or on the skull. A bullet hitting the femur splinters the bone, as it does a glass bottle. At the same time, the bullet breaks into pieces, and its fragments and those of the femur are scattered through the limb, or blown out through the skin as if an explosion had taken place. When a bullet goes through cancellous bone like the head of the femur it may punch a clean hole and cause very little fracturing, but one of the worst fractures is caused when it hits the dense bone of the shaft near its junction with the cancellous bone. In this case the splinters of dense bone are driven into and split up the cancellous bone.

41. **Radical Cure of Inguinal Hernia.**—Starr calls attention to a method of attack on a hernia from within the abdomen when one is operating for other conditions and it is desired to repair a hernia at the one sitting. A pair of curved forceps may be introduced through the internal ring into the sac and the wall of the sac grasped and gradually pulled up into the abdomen until the fundus of the sac becomes completely invaginated. Then the suture with which it is intended to close the abdomen is passed through the neck of the sac and tied to the parietal peritoneum. The suture is then continued along the sac, suturing it to the parietal peritoneum, so that by the time the sac is fully dealt with the suture has reached the cut edges of the abdominal incision and is then carried along, closing the peritoneum. This makes a perfectly satisfactory cure of the hernia, is easily and quickly done, besides saving a second incision. Starr has records of seven cases that have stood the test for two years and more.

45. **Western Provinces are Trying to Provide Hospital Accommodation for Their Rural Sick.**—The question of hospital accommodation and nursing attention for the prairie sick has been the subject of legislation in the twin provinces of Saskatchewan and Alberta. Provision has been made whereby groups of rural and urban municipalities may cooperate in the erection and maintenance of hospitals to serve their people. Each municipality concerned has the power to levy a rate, not exceeding two mills on the dollar, on all assessable property within its borders, for hospital purposes. The managing board is composed of representatives appointed by the councils of the cooperating municipalities, but not necessarily members thereof, and is a body corporate, with powers governing such bodies. The feature which has commended itself more especially to the prairie people in connection with the establishment of these rural hospitals is the immense benefit which they are calculated to confer in maternity cases and emergency sickness.

Broadly speaking, four rural municipalities require a hospital providing accommodation for twenty-five beds, besides quarters for the working staff. The cost of such an institution for building and equipment is estimated at from $1,200 to $1,500 per bed capacity, or between $35,000 and $40,000. Raised by debentures spread over a term of thiry years, and borne by the municipalities in proportion to their assessable value, this capital expenditure represents a very modest increase to the homesteader's taxes. Regarding maintenance, careful investigation suggests that from fifty-five to seventy patients might be expected from each rural municipality, with an average stay in the hospital of fourteen days, at an estimated cost of $2 a day per patient. This would mean that for capital cost, on thirty year debentures, bearing interest at 6 per cent., each rural municipality would have to provide less than $1,000 per annum, while for maintenance, should the maximum estimate be realized and seventy patients receive treatment for fourteen days per patient, $1,960 would be required, or a total cost to each municipality of something like $2,960. As the Saskatchewan government, however, makes a grant of 50 cents per day for every patient receiving treatment in the hospital, $490 would be received from this source, leaving the rural municipality to provide less than $2,500 to meet its debentures, establish a depreciation fund, and pay the hospital fees of any of its ratepayers or their dependents in the province of Saskatchewan. A 1 mill rate will yield at least $2,750, or $250 in excess of the total amount required as the proportion from any one municipality to finance the whole undertaking of building, equipping and providing free hospital accommodation, and the best of skilled nursing attention for every ratepayer and his dependents who may require it, and that without involving any sense of obligation, as the system is one of cooperative municipal insurance.

Cleveland Medical Journal

September XVI, No. 9

51 What Should Practitioner Know About Wassermann Reaction? A. A. Eisenberg, Cleveland.—p. 587.
52 Prophylaxis of Venereal Disease in Army. H. N. Cole, Cleveland.—p. 601.
53 Indications and Method for Removal of Tonsils. H. G. Sherman, Cleveland.—p. 612.
54 Methodless Technic for Cataract Operation. H. G. Sherman, Cleveland.—p. 616.
55 Gradual Reduction Treatment for Morphin Addictions. M. Loewenthal, Cleveland.—p. 618.

Colorado Medicine, Denver

September, XIV, No. 9

56 Phase of Ovarian Secretion. C. S. Elder, Denver.—p. 234.
57 Effect of Intestinal Stasis on Eye, Especially in Iritis. H. M. Thompson, Pueblo.—p. 236.
58 Acute Poliomyelitis. M. E. Miles, Boulder.—p. 240.
59 Historical Sketch of Clinical Pharmacology of Digitalis. R. E. Morris, Minneapolis.—p. 243.
60 Open-Air Schools. S. A. Russell, Denver.—p. 247.

Florida Medical Association Journal, Jacksonville

September, IV, No. 3

61 Medical Preparedness in Great Drive for Democracy. J. C. Bloodgood, Baltimore.—p. 63.

Indiana State Medical Association Journal, Fort Wayne

September, X, No. 9

62 Report on Venarsen in Treatment of Syphilis. F. A. Brayton, Indianapolis.—p. 339.
63 Nerve Blocking for Relief of Genital and Anal Pruritus. O. Smiley, Indianapolis.—p. 341.
64 Bacteriology of Mastoiditis. H. K. Langdon, Indianapolis.—p. 342.

Iowa State Medical Society Journal, Des Moines

September, VII, No. 9

65 Some of the More Important Advances in Diagnosis and Treatment of Tuberculosis. F. M. Pottenger, Monrovia, Calif.—p. 329.
66 Intestinal Obstruction; Review of Experimental Observation with Practical Suggestions. J. N. Jackson, Kansas City, Mo.—p. 336.
67 Plea for More Rational Therapy in Chronic Endocarditis, Particularly with Decompensation. E. D. McClean and K. L. Johnston, Oskaloosa.—p. 339.
68 Carcinoma; Treatment—Past, Present, Prospective. L. H. Branson, Iowa City.—p. 343.
69 Treatment of Acute Gonorrhea by General Practitioner. C. D. Enfield, Jefferson.—p. 346.

Journal of Cutaneous Diseases, Chicago

September, XXXV, No. 7

70 Case of Multiple Benign Tumor-Like New Growths of Schweninger and Buzzi. W. A. Pusey, Chicago.—p. 582.
71 Electric Cautery in Cutaneous Surgery. H. H. Hazen, Washington, D. C.—p. 590.
72 Mode of Absorption of Mercury in Inunction Treatment of Syphilis. U. J. Wile and J. A. Elliott, Ann Arbor, Mich.—p. 594.
73 Coolidge Tube in Treatment of Nonmalignant Diseases of Skin. H. Fox, New York.—p. 599.

Journal of Immunology, Baltimore

August, II, No. 5

74 *Intracutaneous Reaction in Infectious Diarrhea. H. M. Baker, Boston.—p. 453.
75 Plea for Standardization of Reports of Agglutination Tests. P. Hadley, Rhode Island, N. J.—p. 463.
76 Studies in Anaphylaxis. Reciprocal Relations of Antigen and Antibody within Cell. R. Weil, New York.—p. 469.
77 *Studies in Protein Intoxication. Vascular Lesions in Chronic Protein Intoxication. T. H. Boughton, Chicago.—p. 501.
78 *Fate of Foreign Protein in Acute Anaphylactic Reaction. W. H. Manwaring, Y. Kusama and H. E. Crowe, San Francisco.—p. 511.
79 *Rôle of Hepatic Tissues in Acute Anaphylactic Reaction. W. H. Manwaring and H. E. Crowe, San Francisco.—p. 517.

74. **Intracutaneous Reaction in Diarrhea.**—In a series of thirty-three cases the organism of the infectious diarrhea group was isolated in 55 per cent. of the cases. Agglutinins for the dysentery group were found in 12 per cent. of the cases which were found to be negative from the bacteriologic examination and a characteristic smear, as stained by Gram's method, with a typical history in 25 per cent. of the other cases. The intracutaneous reaction, on the other hand, showed 100 per cent. negative results in the control cases. In cases with history of infectious diarrhea positive reactions were obtained in 85 per cent. of the cases.

77. **Vascular Lesions in Protein Intoxication.**—This paper is a continuation of the work previously reported, with especial reference to the occurrence of vascular lesions in various organs. The materials used and methods employed were the same as those previously described, the object desired being to give each animal as many anaphylactic shocks as possible during the course of the experiment, using egg-white and beef serum. Boughton found that repeated injections of foreign proteins in sensitized guinea-pigs produce lesions of the smaller arteries of liver, kidney, spleen and heart, characterized by degeneration and regeneration of endothelium, edema and fissuring of intima and media, and sometimes splitting of the internal elastic lamina. These lesions are interpreted as being subacute rather than chronic. These lesions are rarely found in the larger arteries, and not at all in the aorta. They are practically absent from veins and capillaries. These lesions occur in 100 per cent. of the livers, 100 per cent. of the spleens, 66 per cent. of the kidneys, and 66 per cent. of the hearts, and were most severe in the livers and least severe in the hearts. The lesions were most severe in animals dying or killed soon after the last injection, and were less frequent and severe in animals killed several weeks after the last injection. Perivascular infiltration was observed in 60 per cent. of the animals, though never severe, but was not found in animals killed more than five weeks after the last injection.

78. **Foreign Protein in Anaphylactic Reaction.**—The validity or nonvalidity of the principal theories concerning the nature of the acute anaphylactic reaction was tested by the authors. Perfusions of isolated organs and tissues with dilute foreign proteins furnished no evidence of a measurable destruction of the foreign protein by the blood serum, nor of an appreciable destruction or binding of the foreign protein by the fixed tissues during the acute anaphylactic reaction.

79. **Hepatic Tissues in Anaphylactic Reaction.**—It was found by Manwaring and Crowe that the detoxicating action of the anaphylactic liver is not due solely to the presence of anaphylactic humoral elements. There is evidently an acquired detoxicating function of the fixed liver cells. The detoxicating action is not due to a removal or destruction of the foreign protein in the perfusion fluid. The liver of a normal guinea-pig, repeatedly perfused with a mixture of foreign protein and defibrinated normal or anaphylactic blood, produced little or no change in the toxicity of the perfusion mixture on subsequent tests with isolated anaphylactic lungs. The liver of an anaphylactic guinea-pig, similarly perfused, usually rendered the perfusion fluid almost completely nontoxic for these lungs. Evidence points to the explosive formation or liberation of vasodilator and bronchodilator substances by the sensitized liver cells.

Journal of Pharmacology and Experimental Therapeutics, Baltimore

September, X, No. 3

80 *Effect of Caffein on Reaction to Carbon Dioxid of Normal Human Respiratory Mechanism. G. P. Grabfield and J. H. Means, Boston.—p. 159.
81 *Certain Antagonists of Pilocarpin. F. Ransom, London.—p. 169.
82 *Pharmacologic Studies of Ipecac Alkaloids and Some Synthetic Derivatives of Cephaelin. Studies on Emetic Effect and Irritant Action. A. L. Waiters, C. R. Eckler and E. W. Koch, Indianapolis.—p. 185.

83 *Method for Standardization of Thyroid Preparations. J. M. Rogoff, Cleveland.—p. 199.
84 *Influence of Oxygen on Inflammatory Reactions. S. Amberg, A. S. Loevenhart and W. B. McClure, Madison, Wis.—p. 209.

80. **Effect of Caffein on Respiration.**—No significant change was found by Grabfield and Means in the rate of reaction to carbon dioxid as a result of taking various doses (small and large) of caffein alkaloid, by mouth, in two normal human subjects.

81. **Certain Antagonists of Pilocarpin.**—The net result of Ransom's experiments is to make it clear that the chronotrope and inotrope actions of pilocarpin are fundamentally distinct. They are both vagal effects but different groups of vagal fibers are concerned in their production and hence one action can be antagonized while the other remains intact. Atropin paralyses vagal endings and hence entirely antagonizes the heart actions of pilocarpin. Strontium, digitalis, agaricin and saponin, which, without affecting the vagus, have a positive inotrope action on the frog's heart, antagonize the negative inotrope action of pilocarpin but leave the negative chronotrope effect unimpaired. Epinephrin and caffein antagonize both the actions of pilocarpin, not because they affect either of the two sets of vagal fibers, but because they produce effects the reverse of those which stimulation of the two vagal groups brings about.

82. **Pharmacology of Ipecac Alkaloids.**—The experiments reported by the authors demonstrated that in cats the emetic dose of emetin hydrochlorid is approximately twice that of cephaelin hydrochlorid, and that the higher homologues of this series decrease in emetic power very much in the same ratio as they do in toxicity, as reported in a previous paper. Furthermore, it has been shown that the hydrochlorid, hydrobromid and hydro-iodid of emetin vary only slightly in their emetic power, but that the hydro-iodid of cephaelin iso-amyl ether, due to its relative insolubility, is about one half as emetic as the hydrobromid or hydrochlorid of cephaelin iso-amyl ether and only one sixth as emetic as emetin hydrochlorid. When tested on the conjunctiva of rabbits, emetin and cephaelin are the most irritant of this series and cephaelin iso-amyl ether is least irritating. When injected intramuscularly in rabbits cephaelin iso-amyl ether is the most irritant while the difference between the other less irritant members of the series is not marked. Cephaelin propyl ether phosphate gives no more than a slight local reaction when injected hypodermatically into persons, while cephaelin iso-amyl ether salts cause severe pain, soreness and local inflammation.

83. **Standardization of Thyroid Preparations.**—A method is described by Rogoff in which the specific action of thyroid on tadpoles is used to assay the physiologic value of commercial thyroid preparations. Of seven products purchased in retail drug stores, two indicated about 20 per cent. more activity than a standard preparation, two were equal in value to the standard, one somewhat more than 50 per cent. of the standard, one less than 50 per cent., and one was a practically worthless preparation—being only about 10 to 20 per cent. of the value of the standard.

84. **Influence of Oxygen on Inflammatory Reactions.**—Amberg and his associates found that the intravenous injection of the sodium salts of o-iodoso-benzoic acid and o-iodoxy-benzoic acid inhibits the mustard oil reaction of the rabbit conjunctiva as well as that of the skin. No other visible changes in the organism accompany this inhibiting action. Other substances containing chemically active oxygen, such as the sodium salts of diphthalic peroxid, iodic and periodic-acids have an inhibiting action on the mustard oil inflammation. It seems reasonable to ascribe the inhibiting action of these substances to the chemically active oxygen. Exposure of rabbits to atmospheres with reduced partial pressure of oxygen did not have any marked effect on the intensity of the intracutaneous mustard oil reaction. Intravenous injections of sodium cyanogen seem capable of intensifying the conjunctival mustard oil reaction under proper conditions. Within certain limits an influence on tissue oxidations seems to determine an inhibition or intensification of the response to inflammatory stimuli. It seems possible to alter the character of the conjunctival mustard oil reaction by intravenous injections of substances, such as sodium hypochlorite. Irritation produced elsewhere in the organism, as by intraperitoneal injections of kaolin, animal charcoal, mustard oil, may exercise an inhibiting influence on the conjunctival mustard oil reaction of the rabbit.

Journal-Lancet, Minneapolis

September 15, XXXVII, No. 18

85 Diagnosis of Gallbladder Disease. W. H. Bodenstab, Bismarck, N. D.—p. 591.
86 Acute Empyema of Gallbladder. W. A. Dennis, St. Paul.—p. 595.
87 Medical Preparedness. F. A. Spafford, Flandreau, S. D.—p. 599.
88 Tuberculous Peritonitis. M. P. Graham, Carrington, N. D.—p. 605.
89 Prescribing Lenses After Use of Cycloplegics. D. L. Tilderquist, Duluth.—p. 610.
90 Case of Diverticulum of Urinary Bladder with Postmortem Observations. E. H. McIntyre, Virginia.—p. 614.

Medical Record, New York

September 22, XCII, No. 12

91 Diabetes Insipidus in Children. R. D. Moffett and M. Greenberger, New York.—p. 487.
92 Progress in Surgical Therapeusis. A. Vander Veer, Albany.—p. 495.
93 Examination of Patients Suspected of Being Insane. W. R. Dunton, Jr., Towson, Md.—p. 497.
94 Technic of Transduodenal Lavage in Office Practice with or without Oxygen Insufflation. M. E. Jutte, New York.—p. 499.
95 New Method for Determination of Glucose Content in Urine. J. J. Gurtov, New York.—p. 502.
96 Some Ancient Health Laws of Jews. J. H. Marcus, Atlantic City, N. J.—p. 503.
97 War and Venereal Diseases. E. K. Tullidge.—p. 505.

Medicine and Surgery, St. Louis

September, I, No. 7

98 Mental Pitfalls in Industry—and How to Avoid Them. J. Tait, New York.—p. 679.
99 Opportunities Which Industrial Hygiene Offers to General Practitioner and to Public Health Officer. L. I. Harris, New York.—p. 686.
100 Hygienic Survey of Cigar Manufacturing in Philadelphia. H. F. Smyth, P. H. Miller and T. G. Miller, Philadelphia.—p. 698.
101 Relation of Physician to Sóme Problems of Modern Industry. F. D. Patterson, Harrisburg, Pa.—p. 719.
102 Psychopathic Employee: Problem of Industry. M. C. Jarrett, Boston.—p. 727.
103 Industrial Eczema. G. L. Apfelbach, Chicago.—p. 742.
104 Relation of Occupation to Disease. E. Miltimore, New York.—p. 750.
105 Trinitrotoluene Poisoning. A. Hamilton, Chicago.—p. 761.
106 American Chemist and Occupational Diseases. C. Baskerville, New York.—p. 767.
107 Some Phases of Medical Supervision of Employees. W. E. Post, Chicago.—p. 772.
108 Tuberculosis: Industrial Accident. J. B. Hawes, 2d, Boston.—p. 777.
109 Minute Foreign Bodies in Wounds. D. H. Stewart, New York.—p. 780.

New York Medical Journal

September 22, CVI, No. 12

110 Blood Pressure. R. F. Ives, New York.—p. 533.
111 Physical Measures for Treatment of Abnormal Blood Pressure. W. T. Johnson, Philadelphia.—p. 539.
112 Seasickness and Internal Ear Stimulation. L. Fisher, Philadelphia.—p. 542.
113 Rheumatism. H. K. Craig, Washington, D. C.—p. 546.
114 Goiter; Analysis of One Hundred and Twenty-Five Cases. L. F. Watson, Chicago.—p. 549.
115 Sinusitis in Children. K. A. Phelps, New York.—p. 550.
116 Bilateral Choked Disk Following Thyroidectomy. F. Krauss, Philadelphia.—p. 552.
117 Hygiene of Rural Schools. J. A. Nydegger, Baltimore.—p. 554.
118 Medical Department of United States Army. W. W. Reno, Fort Riley, Kan.—p. 537.
119 Disposition of Excreta in Trenches. T. H. Goodwin.—p. 558.

Northwest Medicine, Seattle

September, XVI, No. 9

120 Glycosuria and Pregnancy. T. Torland, Seattle.—p. 257.
121 *Syncytioma Malignum. Review of Literature; Report of Case. R. R. Anderson, Salt Lake City.—p. 259.
122 Radicalism or Conservatism in Treatment of Puerperal Infection. T. W. Buschmann, Seattle.—p. 263.
123 *Case of Smallpox in Utero. W. A. Rothwell, Kendrick, Ida.—p. 265.
124 Rôle of Gynecology in Care of Insane. A. M. Smith, Tacoma.—p. 265.
125 Some Wassermann Test Observations. O. J. West, Seattle.—p. 268.

126 Value of Routine Wassermann in One Thousand Consecutive Cases as They Come to Urologist. W. R. Jones, Seattle.—p. 272.
127 Focal Infection from Surgical Point of View. P. Rockey, Portland, Ore.—p. 274.
128 Focal Infections Complicating Eye. O. M. Babbitt, Portland, Ore.—p. 276.
129 Allen Treatment of Diabetes. R. W. Stearns, Medford, Ore.—p. 279.
130 *Case of Atypical Thyroid Disease, Formes Fruste. M. G. Sturgis, Seattle.—p. 281.

121. **Syncytioma Malignum.**—Anderson reports a case from which it would not appear that it is always necessary to do a complete hysterectomy in cases of malignant syncytioma. He believes that most authorities are too radical and that each case must be handled according to the conditions that exist at the time of operation. From the fact that metastasis takes place through the blood, it would seem that, if metastasis had occurred at all, a complete hysterectomy would give little more chance of permanent cure than a resection of the macroscopic growth.

123. **Smallpox in Utero.**—A woman, pregnant about three months, was sleeping in the same bed with her husband who was found to have smallpox. She was immediately removed to another room and she and her two children and a man and woman who were taking care of the family were successfully vaccinated. The woman had a typical reaction to the vaccine virus. The quarantine was raised in six weeks. One month afterward Rothwell was called to see her. On examination he could find no signs of life in the fetus and the os uteri was dilated about the size of a quarter. The vagina was aseptically packed with gauze and at 6 o'clock next morning a six or six and a half months mummified fetus was expelled. Life must have been extinct for some time, as the abdomen was discolored and distended, and the abdominal muscles and integument were very thin and fragile. What was most noticeable, however, was the presence of round, yellow, slightly pitted scars about the size of the end of a lead pencil, distributed over the whole surface of the body, where the scabs had become detached in utero. Also the vesicles and pustules that invariably accompany a severe case of variola vera were present. The mother had never a sign of a papule, vesicle or pustule but she has a normal vaccination scar.

130. **Atypical Thyroid Disease.**—Sturgis' case presents the unusual spectacle of the symptoms of a preexisting hyperthyroidism overlapping and overshadowing a well developed hypothyroidism, and completely dominating the clinical picture. Compared with them, those arising from hyposecretion seemed almost inconsequential, and yet the first examination disclosed the fact that the gland was almost entirely atrophied and had ceased to functionate. That the symptoms of hyperthyroidism had not only persisted but had even increased seemed to warrant the conclusion that the thyroid was only partly at fault. The blood pressure was amazing. For 125 mm. the sounds fairly snapped and they were audible for 200 mm.

Pennsylvania Medical Journal, Athens

September, XX, No. 12

131 Portal of Entry and Route of Infection in Tuberculosis in Children. O. Klotz, Pittsburgh.—p. 811.
132 Tubercular Conditions of Ear, Nose and Throat. N. P. Stauffer, Philadelphia.—p. 817.
133 *Metabolism and Successful Treatment of Rheumatoid Arthritis. R. Pemberton, Philadelphia.—p. 820.
134 *Blood Pressure from Standpoint of Clinician. F. J. Dever, Philadelphia.—p. 825.
135 Physician and Referee. P. W. Houck, Harrisburg.—p. 828.
136 Relation of Physician to Some of Problems of Modern Industry. F. D. Patterson, Harrisburg.—p. 832.
137 Maternity Insurance. L. Lehrfeld, Philadelphia.—p. 836.
138 Case of Snake Bite, Treatment. A. S. Daggette, Pittsburgh.—p. 838.

133. **Treatment of Rheumatoid Arthritis.**—The facts emphasized by Pemberton are, first, that in rheumatoid arthritis it is necessary to reduce the carbohydrates by an important amount, varying with each case; second, that it is necessary to reduce the proteins considerably, but relatively not so much; and third, that, although the fats cannot be handled with impunity, they may be used with caution to increase the caloric value of the ingested food and meet in some degree the loss of weight. Experiments have shown that some patients were carried through to convalescence with an actual gain of weight by using fat in quantities sufficient to equal or exceed the caloric deficit.

134. **Blood Pressure from Standpoint of Clinician.**—Dever urges that a knowledge of blood pressure is an aid in diagnosis, especially in the cardiovascular-renal diseases. An excellent idea of the functional capacity of the myocardium may be obtained and in acute and chronic disease evidence of weakening of the heart thus may be obtained before other signs of circulatory weakness is evident. The blood pressure is a guide in the treatment of certain diseases, notably chronic renal insufficiency as found in chronic interstitial nephritis. The diastolic pressure should be recorded as well as the systolic pressure, as the latter alone is insufficient to reveal all that is to be ascertained by a study of the blood pressure.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

September, XXV, No. 9

139 Rôle of Newer Chemistry of Blood in Diagnosis and Treatment. R. B. H. Gradwohl, St. Louis.—p. 209.
140 Some Rare Surgical Conditions. J. J. Link, St. Louis.—p. 217.
141 Fractures of Spine. R. H. Hull, Oklahoma City.—p. 223.
142 Examination of Larynx and Bronchi by Means of Laryngoscope. W. E. Dixon, Oklahoma City.—p. 229.

Tennessee State Medical Association Journal, Nashville

September, X, No. 5

143 Angioneurotic Edema—Visceral Crisis; Report of Case. J. L. McGehee, Memphis.—p. 179.
144 Mental and Physical Survey of Retarded Schoolchildren. R. H. Perry, Nashville.—p. 182.
145 Etiology of Diseases of Accessory Sinuses. J. M. Hogshead, Chattanooga.—p. 186.
146 Roentgen Ray Treatment of Skin Diseases. S. S. Marchbanks, Chattanooga.—p. 188.
147 Intussusception; Report of Cases. W. F. Clary, Memphis.—p. 190.
148 Left-Sided Appendicitis. J. L. Crook, Jackson.—p. 193.
149 Some Clinical Features of Early Tuberculosis. G. F. Aycock, Nashville.—p. 195.
150 Nitrous Oxid-Oxygen Analgesia in Labor. R. Patterson, Knoxville.—p. 212.
151 Surgery of Prostate. T. G. Pollard, Nashville.—p. 214.

Texas State Journal of Medicine, Fort Worth

September, XIII, No. 5

152 Anatomic Routes for Operations on Long Bones of Upper Extremity. J. E. Thompson, Galveston.—p. 170.
153 Patent Medicine Evil. F. J. Mayer, Opelousas, La.—p. 174.
154 Diagnostic Value of Leukocytosis. W. W. Waite, El Paso.—p. 178.
155 Normal Differential Leukocytic Count as Determined by Study of One Hundred and Fourteen Adults. M. D. Levy, Galveston.—p. 179.
156 Frontal Sinusitis; Report of Cases. W. D. Jones, Dallas.—p. 182.
157 Conservative Treatment of Sinus Infections. L. K. Beck, San Antonio.—p. 184.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Annals of Tropical Medicine and Parasitology, Liverpool

August, XI, No. 2

1 *Periodicity of Microfilaria Nocturna; Report of Case of Filariasis. W. Yorke and B. Blacklock.—p. 127.
2 *Treatment of Malaria. Intravenous Injections of Quinin Bihydrochlorid. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie and C. F. Cooper.—p. 149.
3 *Id. Intramuscular Injections of Amylopsin and Trypsin in Simple Tertian Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie and C. F. Cooper.—p. 165.
4 *Id. Intramuscular Injections of Quinin Alkaloid in Simple Tertian Malaria. J. W. W. Stephens, W. Yorke, B. Blacklock, J. W. S. Macfie, C. F. Cooper and H. F. Carter.—p. 173.
5 *Occurrence of Intestinal Protozoa in Nondysenteric Cases. A. M. Smith and J. R. Matthews.—p. 183.
6 Value of Concentrating Cysts of Protozoal Parasites in Examining Stools of Dysenteric Patients for Pathogenic Entamebae. H. F. Carter and J. R. Matthews.—p. 195.
7 *Some Results Obtained by Heiser's Treatment of Leprosy in Nigeria. H. S. Coghill.—p. 205.

1. **Periodicity of Microfilaria Nocturna.**—In the case cited by Yorke and Blacklock blood films made during the daytime were either negative or contained only an odd microfilaria,

whereas in those prepared at night microfilariae were found in considerable numbers. Thick dehemoglobinized films were stained with hematin, and the morphology of the parasite examined. The larvae were identified as those of *Filaria bancrofti.* A series of observations was made with the object of studying the periodicity of the microfilariae in the cutaneous blood. The number of larvae per cubic centimeter of cutaneous blood was estimated every two hours for a period of twenty-four hours, on two occasions. Furthermore, the number of larvae per cubic centimeter of venous blood (median basilic vein) was determined. It was found that obstruction to the passage of *Microfilaria bancrofti* through the cutaneous vessels occurs at all times of the day and night, but is at a minimum at the end of the period of bodily activity. Although this obstruction aids in the piling up of the larvae in the cutaneous vessels, it is in no way responsible for the nocturnal periodicity.

The nocturnal periodicity is primarily dependent on periodic variations in the arterial supply of larvae to the cutaneous vessels. By reversing the hours of sleep and activity, cutaneous immigration becomes diurnal instead of nocturnal. The change, however, takes place gradually; after the periods of sleep and activity had been reversed for four days the time of maximum concentration of the larvae in the cutaneous vessels had only been set back six hours (from midnight to 6 a. m.); when reversal of the hours of sleep and activity had lasted for eleven days the time of maximum cutaneous concentration had been changed from midnight to midday. The number of microfilariae, as judged from the maximum concentration in the cutaneous blood, remained at practically a constant level during the period of observation. The number of microfilariae present in 100 c.c. of urine varied greatly at different times during a twenty-four-hour period. These variations, which were irregular and gave no indication of either a nocturnal of diurnal periodicity, are explained on the assumption that the majority of the microfilariae escaped into the urine with the blood. Graphs depicting the number of larvae per cubic centimeter of urinary blood reveal the existence of a regular periodicity corresponding to that of the larvae in the cutaneous blood, with the difference that the time of maximum concentration was several hours later. The number of microfilariae in the renal and vesical vessels exhibits a nocturnal periodicity analogous to that in the cutaneous vessels.

2. **Quinin Bihydrochlorid in Treatment of Malaria.**—Single injections of quinin bihydrochlorid were given in eight cases of simple tertian malaria. In seven of these the amount of quinin injected was 15 grains, in the other, 10 grains. The results were similar in all cases. The temperature fell to normal in one to three days, and parasites disappeared from the cutaneous blood in two to five days. Six of the eight patients relapsed. Parasites reappeared in eight to fourteen days. Febrile paroxysms recurred on an average in fifteen days (minimum 10, maximum 20). Of the remaining two patients, one was given quinin orally on the fourth day, and the other died of cerebral hemorrhage of undetermined nature on the tenth day.

Multiple injections were given in thirteen cases, five in one case and six in twelve. The injections were given on Mondays, Wednesdays and Fridays. As a rule, 10 grains were given at each injection, but on a few occasions 15 grains. In one patient the treatment did not cause the disappearance of parasites from the blood, but the febrile paroxysms were controlled. In another case the temperature fell to normal after the first injection, parasites disappeared from the blood after the second injection, and there was no relapse for an observation period of two and a half months. In the remaining eleven cases the temperature fell to normal after one to three injections; the parasites disappeared from the blood after one to four injections. All of the eleven patients relapsed. Parasites reappeared in eight to eighteen days. Febrile paroxysms recurred on an average of eleven days.

Single injections were given in two cases of malignant tertian malaria: 15 grains in one case, 10 grains in the other. In neither did the treatment cause the parasites (trophozoites or gametes) to disappear from the blood. Multiple injections were given in five cases; four in one case, and six in four. The injections were given on Mondays, Wednesdays and Fridays; 10 grains on every occasion. In each case the treatment was administered during an apyrexial period. Speaking generally, the treatment did not cause the parasites (trophozoites or gametes) to disappear from the cutaneous blood. In a series of 127 injections, thrombosis occured in four patients. There was no other symptom worthy of note.

3. **Amylopsin and Trypsin in Treatment of Tertian Malaria.** —Intramuscular injections of amylopsin and trypsin proved to be of no value in the treatment of ten cases of acute simple tertian malaria. Some swelling and tenderness occurred at the site of injection. On this account, and because the paroxysms were not checked, the majority of the patients refused to have more than one or two injections.

4. **Quinin Alkaloid in Treatment of Tertian Malaria.**—The solution used by the authors for this purpose was made in the following way: 1 gm. of quinin alkaloid was dissolved in 1 c.c. of 90 per cent. alcohol, and the volume made up to 3 c.c. with sesame oil. By this means a clear viscid solution capable of being easily injected was obtained, 1 c.c. containing approximately 5 grains of the alkaloid. The injection brought about: (1) A cessation of febrile paroxysms. The temperature usually fell to normal within four days of the first injection. (2) Disappearance of parasites (trophozoites and gametes) from the cutaneous blood usually in one to two days. Thirty-one of the thirty-eight patients treated relapsed. Parasites reappeared on an average in eighteen days. Febrile paroxysms recurred on an average in twenty days. The remaining seven patients had not relapsed within an observation period of two months.

A comparison of these results with those recorded with the use of a very soluble salt of quinin, the bihydrochlorid, shows that the therapeutic action of the insoluble alkaloid is in no way inferior to that of the soluble salt. Subcutaneous injections of this solution resulted in sloughing. Intramuscular injections of 3 to 4 c.c. resulted in slight pain at the time of injection; in larger doses, 6 c.c., the immediate pain was more severe and pain recurred some twenty-four to forty-eight hours later. There was no abscess formation or other ill effect. For several days after injection a slight diffuse swelling was appreciable at the site of injection; this, however, disappeared entirely in the course of a few days.

5. **Occurrence of Intestinal Protozoa in Nondysenteric Cases.**—Of 200 nondysenteric patients in the hospital for various diseases 34.5 per cent. were found to be infected with various protozoa. *E. histolytica* was discovered in fifteen cases (7.5 per cent.). One hundred cases were malaria and among these six infections with *E. histolytica* were detected. There were forty-two cases with a history of dysentery and 158 cases with no history of dysentery. Of the former 7.1 per cent. were found positive to *E. histolytica,* and of the latter 7.6 per cent. Of 142 patients who had been to tropical or subtropical regions, 11, or 7.7 per cent., were found infected with *E. histolytica.* The remaining fifty-eight patients had been to France only, and four, or 6.9 per cent., were discovered to be infected with this parasite. The great majority of the cases (123) had only two examinations each.

7. **Heiser's Treatment of Leprosy.**—The method of treatment of leprosy described by Heiser has been tried by Coghill with some of the inmates of the Yaba Leper Asylum. The treatment was begun in May, 1916, so that it is as yet too soon to make a complete report, more particularly as all the patients are old standing cases. The oil mixture used was that recommended by Heiser: chaulmoogra oil, 60 c.c.; camphorated oil, 60 c.c., and resorcin, 4 grains. The mixture was sterilized by boiling, and 2 c.c. injected intramuscularly into the buttock, were given as an initial dose. After the lapse of one week, 3 c.c. were given, and this dose was increased by 1 c.c. per week until 8 c.c. were being administered. Beyond this amount some discomfort was complained of, so that the procedure finally adopted was to inject 6 c.c. twice a week. This dose was well tolerated and every case responded to treatment. The most rapid and obvious effect was the healing of ulcers, many of them large and deep, and

of many years' duration. Softening, then absorption of the nodules, fading of the maculae and the return of sensation were also observable, even to the patients themselves.

British Medical Journal, London

September 8, II, No. 2958

8 Educational Number, Sessions 1917-1918.—p. 309.

Edinburgh Medical Journal

September, XIX, No. 3

9 Treatment of Toxemia of Common Infections in Children by Intravenous Injection of Eusol. J. L. Smith, J. Ritchie and T. Rettie.—p. 143.
10 *Sphere of Arthroplasty in Treatment of Ankylosis. A. Thomson. —p. 176.
11 Carcinoma of Pelvic Colon: Resection. Three Years Later, Recurrence in Rectum: Colostomy. One Year Later, Carcinomatous Stricture, Small Intestine: Resection. Carcinoma at Colostomy Opening: Death Six Years After First Operation. J. W. Dowden.—p. 181.

10. **Sphere of Arthroplasty in Treatment of Ankylosis.**—While arthroplasty may be brilliantly successful in joints ankylosed by purely traumatic lesions, Thomson says, it is liable to fail in points ankylosed as a result of bacterial infection. The two great causes of failure are found to be (1) either a recrudescence of the original infection, that is, tuberculosis and dormant infections of gunshot injuries, interfering with the formation of the false joint, or (2) an increased activity of the bone forming tissues leading to a return of the ankylosis.

Journal of Tropical Medicine and Hygiene, London

September 1, XX, No. 17

12 Scarlet Fever-Like Eruptions in Tropics. A. J. Chalmers and A. Innes.—p. 193.
13 Tropical Diseases Met with in Balcanic and Adriatic Zones. A. Castellani.—p. 198.

Medical Journal of Australia, Sydney

August 4, II, No. 5

14 *Chronic Ulcer of Stomach and Duodenum; Surgical Treatment and End Results. H. B. Devine.—p. 89.

August 11, No. 6

15 Localization in Roentgenography. C. W. Joy.—p. 113.
16 *Pathology and Treatment of Barcoo Rot (Veld Sore). C. J. Martin.—p. 118.
17 Strangulation of Pylorus. C. Friend.—p. 120.

14. **Surgical Treatment of Ulcer of Stomach and Duodenum.**—The following deductions are drawn by Devine from his experience with thirty-eight cases. Gastro-enterostomy only for a lesser curvature ulcer may result in a failure or cure. Wide resections of an ulcer almost to greater curvature unassociated with pyloric stenosis resulted in all cases in a permanent cure. Postoperative distress was noticeably absent, and no gastro-enterostomy was necessary. Cases of postpyloric or prepyloric ulcers with marked stenosis did well with simple gastro-enterostomy. The autoplastic rectus sheath graft with gastro-enterostomy can be used with success in some cases of prepyloric and postpyloric ulcer in cases in which there is no stenosis, and especially in which there is a tendency to bleed. Stomach operations lend themselves to stage operations, and often this is the surest way for a successful termination of the surgical treatment. The surgical treatment should fit exactly the set of surgical pathologic conditions present, and the surgeon cannot have all this knowledge without a careful and thoughtful preoperative roentgen ray and clinical examination.

16. **Treatment of Barcoo Rot (Veld Sore).**—This disease is characterized by spreading superficial ulcers on the backs of the hands, extensor surface of the forearms and, to a less extent, on the dorsa of the feet and on the shins. The ulceration resembles that met with among bushmen in the backblocks of Australia (during the dry season), and is known locally as "Barcoo rot." The first sign is usually a bleb or blister containing thin, watery pus and surrounded by an area of slightly inflamed skin. The blister may be the size of a sixpense, or even larger, but before it reaches this size it is generally broken. The denuded surface shows little tendency to heal, but slowly extends at its margins, at the same time deepening until there are no more epithelial structures left. The ulcer, however, remains shallow, and it is unusual for the fibrous layer of the skin to be destroyed, unless it becomes infected with virulent staphylococci. The glands are not inflamed unless secondary infection occurs, and there are no constitutional symptoms. When healing has occurred, areas of glossy skin, more or less denuded of hairs and sweat glands, are left. Cicatrization does not occur unless the true skin is destroyed. Infection of fresh areas of skin in the neighborhood is usual, so that the patient has several ulcers of different ages. The disease in its minor forms is extremely annoying, and when the ulcers have become large, incapacitating. In hospital the ulcers generally heal up slowly under any sort of wet antiseptic dressing, but are very difficult to deal with in the field. Acting on the idea that infection of the hair follicles is largely responsible for the continuance of the ulcerative process, Martin removed the hair or hairs traversing the early blebs from the secondary infection, and found that these healed straight away. Next, working on the principle employed to restrict a bush fire, by burning an area in front of it, he attacked the larger ulcers, removing the hairs from their base, and around their margins and was pleased to find that the ulcerative process was stayed, and healing commenced at once.

Annales de Gynécologie et d'Obstétrique, Paris

July-August, LXXII, No. 7-8, pp. 577-640

18 *The Depopulation Problem. C. Richet.—p. 577.
19 *Welfare Work for Children at Havre during the War. A. Loir and H. Legangneux.—p. 609.
20 *Technic for Walling Off the Pelvis after Operations. H. Chaput. —p. 620.
21 Case of Cyst of the Urachus. G. Chavannaz.—p. 630.

18. **The Declining Birth Rate.**—This is one of the reports made by a committee appointed by the Académie de médecine to suggest measures to arrest the depopulation of France. Stress is laid on the principle of financial aid to the child up to the appearance of the twentieth tooth. Richet declares that France is dying unless heroic measures are taken. It is sound finance, he reiterates, to pay out possibly $400 for a little human being, who in the course of a few years will be earning an income of at least that every year. The state, society and the nation will all be the gainers financially.

19. **Child Welfare Work at Havre During the War.**—This report from the Havre board of health emphasizes that the birth rate has declined and the infant death rate risen during the war, principally from the mothers being obliged to leave their infants to work in the factories. Factory work is fatiguing for women, especially for nursing mothers. The help as now given has too much the aspect of charity. The mothers with dirty houses are looked after better than the self-respecting who are too proud to appeal for aid. The suggested remedy is that the financial aid should be given to all the nursing mothers alike, irrespective of their pecuniary condition. This would insure it to all who need it and would stop breeding professional beggars.

20. **Walling Off the Pelvis.**—Chaput describes the various methods with which he walls off the pelvis from the abdominal cavity after operations, or walls off one part from another, in both women and men. This allows the pus accumulating in the pelvis to be drained into the vagina, or rectum in man, after pushing up the small intestine and omentum out of the way and interposing a solid barrier against their sliding down again. The barrier can be total, transverse or vertical. He fastens the sigmoid colon to the superior strait and to the suprapubic peritoneum. This transforms the pelvis into a single cavity with smooth walls, with no crevices to retain pus, easy to drain and to disinfect. The thickness and the high position of the colon roof practically guarantees against propagation of infection upward to the abdomen.

Bulletin de l'Académie de Médecine, Paris

August 21, LXXVIII, No. 32, pp. 119-150

22 *The Depopulation Problem. Committee Report. A. Pinard.—p. 121.
23 *Comparative Resistance of Paratyphoid B Bacillus and Colon Bacillus in Drinking Water. G. Dauménzon.—p. 146.
24 *Syphilis and Masculinity. Girauld and Tissier.—p. 148.

22. **The Declining Birth Rate.**—Pinard presents the report of the committee which has been studying means to remedy the depopulation of France. It fills twenty-six pages, but no vote was taken. Among the principles advocated is that families which have no or few children must be made to aid those that have many. Also that the state should feel that it owes a debt to the woman who bears a child. Also that birth control measures are injurious for the woman as well as for the nation, and that the state should forbid and repress the birth control propaganda as a growing danger.

23. **Survival of Paratyphoid B Bacilli in Drinking Water.**—Daumézon reports that both the colon bacillus and the paratyphoid B long resist the antagonism of other germs in water when sheltered from the light by turbidity of the water. The paratyphoid B seems less resistant than the colon bacillus, but still it seems able to pass still viable through the filtering and other media that do not arrest the colon bacillus.

24. **Syphilis and Masculinity.**—Girauld states that in his service during a recent period 201 syphilitic women were delivered of 119 boys and eighty-two girls. Of the sixty-four living and apparently healthy children, forty-three were boys and only twenty-one girls.

Bulletins de la Soc. Méd. des Hôpitaux, Paris

June 28, XLI, No. 21-22, pp. 773-806

25 *Hemoglobinuria in Malaria Contracted in Macedonia. P. A. Delille and others.—p. 773.
26 *Emetin in Treatment of Liver Abscess. P. A. Delille and others.—p. 777.
27 *Characteristics of Relapsing Fever Contracted in Macedonia. P. A. Delille and others.—p. 778; Portocalis.—p. 780.
28 *Cancer and Traumatism. L. Moreau.—p. 783.
29 Mumps Orchitis Complicated with Colon Bacillus Abscess. M. Troude.—p. 785.
30 *Paratyphoid B of Alimentary Origin. F. Lévy.—p. 787.
31 *Pneumococci and Meningococci in Meningitic Fluid. A. Netter and M. Salanier.—p. 789.
32 Nongonorrheal Urethritis with Epididymitis, Caused by Pseudodiphtheria Bacilli. L. Ramond, and others.—p. 797.
33 *Meningeal Hemorrhage in Soldiers on Active Service. P. Nobécourt.—p. 802.

25. **Hemoglobinuria in Macedonian Malaria.**—Delille and his co-workers state that the tropical character of the malaria contracted by the French troops in Macedonia is evidenced particularly by the relative frequency of hemoglobinuria. The mortality was high, nearly 30 per cent. The malaria was usually of long standing, six months or more, and cold weather seemed to be a factor in its appearance. The findings indicate massive destruction of blood corpuscles, probably in the blood stream, as the first phase. It may be accompanied by hemorrhages from the mucosa. The hemoglobin thus liberated is transformed into bile pigments, the excess passing off through the kidneys. The hemoglobin may be in such quantities that it clogs the kidneys and the patient may succumb to anuria. In the more fortunate cases, the urine washes out the hemoglobin plugs. There was no death from anemia, and the corpuscles regenerated extremely rapidly.

26. **Emetin for Suppuration in the Liver.**—The emetin reduces the pain and fever in less than forty-eight hours whether the hepatitis is in an incipient phase or an abscess has formed. There may be no history of dysentery in the antecedents or the patient has forgotten it, but the intestines never forget it. Necropsy in fatal cases of liver abscess may reveal lesions suggesting chronic amebic dysentery though they failed to induce appreciable symptoms.

27. **Relapsing Fever in Macedonia.**—There was only one death among the fifty cases under observation. The onset was stormy, the liver always involved, with more or less jaundice in 90 per cent. of the cases. Lively headache and a suggestion of the Kernig sign and lymphocytosis were common. A second relapse occurred only in 10 per cent. and it was brief. The disease is essentially mild; only two deaths were known, both occurring with symptoms of acute suprarenal insufficiency, and a retrospective diagnosis of Addison's disease was manifest.

28. **Cancer and Trauma.**—Moreau describes an epithelioma developing in the parotid gland in a colonial of 42. He had been struck in this region in 1914 by a fragment of a shell but there was no superficial wound or fracture. There had never been any previous glandular trouble in the neck, but the man had a history of malaria, typhoid and a liver abscess. The cancer recurred after extirpation and radiotherapy.

30. **Paratyphoid B from Meat Poisoning.**—The small epidemic was traced to insufficiently cooked ham. The bacilli were found in the ham but they were also found on the hands of one of the cooks who proved to be a carrier.

31. **Mixed Infection in Meningitis.**—Netter and Salanier now have a record of twenty-two cases of meningococcus meningitis in which pneumococci were found also in the spinal fluid. This sustains their previous plea for combined antiserum treatment against both these germs.

33. **Meningeal Hemorrhages in Soldiers.**—Nobécourt remarks that meningeal hemorrhage is rather common in soldiers, as he has encountered it in three cases out of a total series of 2,660 patients in the contagious disease hospital in his charge not far from the front. Meningitis formed 8.3 per cent. of the total series. No cause for the hemorrhage was found in the two cases. In one of these, after a few days of headache, convulsions developed with aphasia and strabismus, and progressive flaccid paralysis followed. The onset was more insidious in the other case, with symptoms revealing tuberculous meningitis, fatal in a few days. In the third case the onset was sudden coma, the neck and legs stiff, with death in sixteen hours. Lumbar puncture disclosed meningeal hemorrhage in each case. The hemorrhage was profuse in the meninges and ventricle, as also in lungs and spleen, with intense congestion of kidneys and suprarenals, but no cause for this could be discovered, no inflammatory lesions, and the extravasated reds were of normal shape.

Lyon Médical

August, CXXVI, No. 8, pp. 349-396

34 *Mercurial Stomatitis; Pathogenesis, Prophylaxis and Treatment. M. Favre.—p. 349.
35 *Castor Oil as Lubricant for Wounds and Dressings. (L'huile de ricin.) L. Revillet.—p. 355.
36 *War Enteritis. A. Mollière.—p. 357.

34. **Mercurial Stomatitis, Treatment and Prophylaxis.**—Favre's extensive experience has demonstrated, he says, that the stomatitis which develops under mercurial treatment is identical in every respect with Vincent's ulceromembranous stomatitis, and treatment and prophylaxis should be the same for both. Vincent's spirillum is inevitably present, and if this spirillum is exterminated, the affection rapidly subsides, even with mixed infection. The mercury being taken merely induces local congestion and irritates the vessels, activating the spirilla already in the mouth, just as decayed teeth, deposits of tartar or the eruption of a wisdom tooth are liable to bring on Vincent's angina. It may exist in an unnoticed latent form until it flares up under the mercury. Any drugs which kill the spirilla cure the mercurial stomatitis, even when the mercury is continued. Arsenic and silver nitrate are the most effectual. The arsenic can be given internally or intravenously or by local application; associated with the mercury it cures the disturbance set up by the latter. This "conjugated method," as he calls it, giving neosalvarsan with the mercury, allows the full therapeutic effect of the mercury while warding off trouble in the mouth. For local treatment, silver nitrate is more effectual than arsenic, being the specific, he affirms, for external spirilla infections. The treatment which he has found promptly successful in hundreds of cases begins with mechanical cleansing of the mucosa of the patches and membranes. This is done with cotton-wound toothpicks dipped in 1 per cent. silver nitrate. The ulcerating mucosa is rubbed vigorously and cleansed of all the purulent masses and pseudomembranes, working between the teeth, and thus transforming the inflamed mucosa into a red, freely bleeding surface. The mucosa thus prepared is swabbed with a 1:15 or 1:20 solution of silver nitrate, working it into all crevices, and the procedure concludes with copious application of 1 per cent. methylene blue. The first treatment is always the longest and

the hardest to bear. By the next day the aspect of the lesions is much modified and the functional symptoms have improved. The swabbing is done once a day at first and then at longer intervals. It soon is possible to have the tartar removed and the teeth otherwise put in order, and with hygiene of the mouth, gargling with hydrogen dioxid and brushing the teeth, there is no return of the buccal infection, even although the mercurial treatment is continued unmodified. [Compare with the article by Campbell and Dyas in The Journal, June 2, 1917, p. 1596.]

35. **Castor Oil for Dressing Wounds.**—Revillet comments on the fact that castor oil never dries out, so that gauze, etc., impregnated with it never sticks to the wound, no matter how long it is in contact with it. Another advantage of castor over other oils is its characteristic slipperiness which facilitates the working in of wicks, etc., and renders their extraction easy and harmless. But its chief advantage is that it dissolves alcohol, tinctures, essences, etc., and holds them without allowing sedimentation. Perfume manufacturers use castor oil as an excipient for essences as it holds them without growing turbid or precipitating them. After considerable trials he found that 0.4 c.c. each of oil of thyme, oil of lavender and oil of eucalyptus in a liter of castor oil produced an agreeable aromatic lubricant and dressing which deodorizes at once and never irritates, while it has some antiseptic power. The dressings impregnated with this oil mixture are sterilized in a jar placed in boiling water for an hour and a half. Steam sterilization would drive off the volatile oils and might break the jars.

36. **War Diarrhea.**—Mollière declares that infectious sore throat, dental caries and gastro-enteritis might be warded off in many cases if chronic rhinopharyngitis were promptly cured. He examines the throat the first thing, when a man complains of enteritis, and swabs the throat with iodized glycerin several times a day. When there has been diarrhea for several days, typhoid or infection of the biliary passages should be suspected, even when there is no fever. A slow infection with exposure to wet and cold is liable to send the temperature below normal rather than above in some cases. With an infectious process in the biliary passages the pain appears and grows worse after walking a few miles, but it may not be severe. It is always on the right side and may be at the bladder point or McBurney point, but is diffuse on pressure except when it can be localized with the sign of Glénard's girdle. It is not accompanied by muscular rigidity of the abdominal wall, and it may be relieved by wearing a tight belt. The diet does not seem to modify it except that meat and alcohol aggravate it. Another sign is that saline purgatives do not act until after an interval twice or three times as long as usual, and, after their effect has passed off, the stools retain their diarrheic nature instead of the constipation which ordinarily follows a purge. The third sign is a tendency to jaundice in the conjunctiva after much fatigue or a heavy meal or a small dose of alcohol. A liqueur glass of brandy is rapidly followed by this subicterus.

Paris Médical

August 18, VII, No. 33, pp. 145-160

37 *Light and Heat as Aid to Massage. L. Alquier.—p. 145.
38 *Tests of Functional Capacity of Left Ventricle. L. A. Amblard.—p. 149.
39 Technic for Removing Sequesters. (Esquillectomie en chirurgie de guerre.) H. Costantini.—p. 154.
40 *Recent Surgery and Medicine in Germany. A. Leroy.—p. 158.

37. **Treatment with Electric Light and Heat plus Massage.**—Alquier lauds the excellent results obtained with what he calls a thermophotophore which focuses the light and heat from an incandescent bulb on the region over persisting edema and relics of inflammation; its action is reenforced with massage. This combination ensures the reabsorption of everything that is resorbable by the blood or lymph passages as long as fibrous tissue is not definitely constituted. He has succeeded by this means in restoring the functional use to limbs apparently permanently crippled by cheloid cicatricial tissue or diffuse or localized induration or hard edema. He reports also the rapid improvement of lymphatic engorgement in muscular rheumatism, and in periarthritis and synovitis, even the tuberculous. He has also cured by this means cases of pseudoneuralgia and visceral trouble including palpitations of the heart with arrhythmia, dyspnea from inability to expand the chest, and certain laryngeal and gastro-intestinal troubles originating in engorgement with lymph.

38. **Test of Heart Functional Capacity.**—Amblard gives a number of charts registering the maximum and minimum blood pressure and the pulse, at rest, after moderate exercise, and after violent exercise. Some of the charts are made up from the average of large numbers of healthy persons, and others from persons with various heart affections. Whatever the pressure may be to start with, if the maximal pressure drops and the minimal rises only a very little after exertion, while the pulse becomes much accelerated, this indicates absolute insufficiency on the part of the heart unless the significance is modified by long training in physical exercise. He calls attention to this increased frequency of the ventricular wave as an aid in sifting out men whose hearts are not equal to the strain of exhausting exertion, although he admits that dyspnea on effort is the true warning signal of functional insufficiency of the ventricle.

40. **Surgery in Germany.**—Leroy reviews some recent articles on war surgery that have been published in the German medical weeklies, remarking: "The German medical majors make necropsies, and that is a superiority over other countries. They write that the war has taught a number of things, among them that when a man with a brain wound succumbs after resection of brain tissue, the ventricles are always found infected. It is this infection which is responsible for the hernia of the brain and decides the man's fate. Consequently, do not resect, but let the cerebrospinal fluid flow." He quotes in regard to wounds of the lung that they advise puncture always when there is effusion with fever even although not more than 100 c.c. of fluid can be withdrawn. In case of infection, they resect the eighth rib with drainage both front and rear. Necropsies have shown that extravasated blood above the liver passes into the pleura, and that with any lesion of the diaphragm the viscera hernia upward. The German surgeons confirm the extreme gravity of injuries of the large intestine and the mildness of uncomplicated perforations of the bladder. They advise to leave open to the air the profusely suppurating wounds, dressing them at night with an absorbent dressing of animal charcoal or pulverized sugar. As a substitute for hydrogen dioxid they use a mixture of equal parts of calcium perborate and talcum. They report six cases of gas gangrene cured under treatment with an elastic band drawn tight enough to make the limb red and hot but not enough to induce anesthesia or pain. For erysipelas they commend ultraviolet radiation, commencing with ten minutes a day and increasing daily by from one to five minutes, the distance from the quartz lamp from 70 to 100 cm. Treatment of injury from asphyxiating gases includes, during the period of agitation, injection of atropin, from 0.5 to 1 mg.; during the phase of collapse, caffein, avoiding strong doses.

Presse Médicale, Paris

August 9, XXV, No. 45, pp. 465-472

41 *Frequency and Significance of Left and Right Diastolic Aortic Murmurs with Aortic Insufficiency. F. Trémolières, L. Caussade and J. Toupet.—p. 465.
42 *Minor Electric Signs of Sciatica. V. Neri (Bologna).—p. 466.
43 *Pseudo-Tuberculous Fat Granulations on an Ovary. F. Jayle and Y. Bertrand.—p. 468.
44 Treatment of Ileus. V. Pauchet.—p. 468.

August 23, No. 47, pp. 481-496

45 *Vaccine Therapy for Typhoid Osteoperiostitis. P. E. Weil and Chevrier.—p. 481.
46 *Connection between Alopecia Areata and Defectively Developed Teeth. R. Sabouraud.—p. 484.
47 *Skin Plastic Operation after Opening Up Fistulous Lesion in Long Bone. (Ostectomie suivie de stomatoplastie.) F. Jayle.—p. 486.
48 *Rapid Evolution of General Paralysis in Men on Active Service. R. Mignot.—p. 487.
49 American Methods of Anesthesia. J. Luzoir.—p. 488.

41. **The Murmurs with Aortic Incompetency.**—Trémolières asserts that in young adults the murmur of aortic insufficiency is generally to be heard to the left of the sternum, in

the third interspace, instead of at the classic site as taught in the textbooks. Roentgenoscopy, always a valuable guide in cardiac pathology, will confirm the diagnosis of the aortic insufficiency in these cases. Only when the valvular trouble has reached an advanced stage and been aggravated by the dilatation of the right cavities, only then is the murmur heard at the classic site to the right of the sternum. This was the case only in ten of sixty-six cases studied; in twenty-six the murmur was heard to the left of the sternum; in twenty at the sternum itself; in nine at the xiphoid appendix, and in one case at the tip. When the murmur was heard at the left of the sternum it was usually at the inner angle of the third or second interspace; exceptionally at the fourth or still more rarely at the fifth. He explains the mechanism for this, and describes the roentgenoscopic findings. With a recent aortic lesion the left ventricle is simply hypertrophied and the aorta is vertical, and the murmur is heard to the left of the sternum. With an old aortic lesion the right cavities are dilated also and the aorta slants, and the murmur is heard to the right.

42. **Electric Reactions with Sciatica.**—Neri's article was summarized recently when it appeared elsewhere. (Abstract 70 in The Journal, p. 246.)

43. **Fat Granulations on the Ovary.**—Jayle and Bertrand give the macroscopic and microscopic findings in a case of ovarian abscess with small yellowish granulations scattered over the surface, closely resembling tuberculous processes. They proved, however, to be merely fat granulations.

45. **Vaccine Therapy of Typhoid Osteoperiostitis.**—Weil has now a record of twelve cases of ostitis consecutive to typhoid fever. Nine of the men had never been given preventive vaccination against typhoid but two had been thoroughly vaccinated, ten and three months before. Agglutination was pronounced in all although the interval since the typhoid had been one or two years or more. The ages ranged from 27 to 44, only two being under 30. In differentiating, exclusion of tuberculosis is practically the only difficulty. In some other cases typhoid fever had caused the flaring up of clinically cured tuberculosis, and the ostitis was the work of the latter. Differentiation in one case was facilitated by a concomitant anal fistula. A dental origin was discovered in other cases. In two cases the ostitis was in a rib and had caused much bulging and pain, but there was no suppuration. The bone process was of one and two years' standing but it subsided smoothly in each case under the typhoid vaccine therapy alone, and the cure has been complete during the six months to date. Vaccine therapy alone seldom cures in the suppurating cases, as the lesions are too deep and extensive for this unaided to be effectual. But complete success was attained by commencing the vaccine therapy and, after four injections, clearing out the bone lesion and then resuming the vaccine to a total of sixteen injections in all. He outlines the extensive operative measures necessary to clear out the focus, and expatiates on the highly satisfactory results obtained by this mixed treatment. The bone lesion once cleared out, healing proceeded remarkably fast and by the end of two or three months the cure seemed to be complete. The vaccine prevents reinfection of the bone, which is the rule after ordinary surgical treatment without the vaccine, and is frequent after vaccine therapy alone. By combining the two, the trouble is actually conquered. Better than this, however, he declares, is the prevention of the trouble, or at least its early and complete cure while still in the incipient stages. By detecting the bone affection early and attacking it at once with vaccine therapy, we can avoid the necessity for surgical measures.

46. **Connection between Falling of the Hair and Imperfect Teeth.**—Sabouraud gives some illustrations of the teeth of persons with alopecia areata. They indicate, he says, that some initial teratologic disturbance is responsible for the tendency for the hair to fall out, and for the defective teeth and defective growth of teeth and nails. Inherited syphilis is sometimes but not always responsible.

47. **"Cutinization" in Treatment of Fistula into Bone.**—Jayle gives an illustrated description of his method of treating fistulas into long bones rebellious to the ordinary methods. He transforms the bottle-shaped lesion into a broad open wound, and lines the walls of the cavity thus created with skin, after loosening up the skin for some distance all around the hole. To get skin enough to cover the entire circle of the opening he makes a scythe-shaped incision at each end of the opening, the straight line, representing the handle of the scythe, running parallel with the lengthwise axis of the opening. The flap thus mobilized is easily twisted around to cover the rest of the opening at each end after the skin has been sutured along each side. The curving needle is passed through the skin some distance back of the edge of the hole and is drawn out just below the periosteum where it is threaded with one end of the suture material which has been passed through the extreme edge of the skin to form a U. The two ends are thus drawn back through the skin separately and tied. Six of these threads are sufficient, each tied separately. The skin defect left by twisting the flaps around is easily corrected by drawing up the skin and suturing it. The finished operation shows an open crater directly in the bone, like a basin, with nothing but skin showing, lining all the sides down to the bone at the bottom. Jayle has done 536 operations for bone fistulas during the war.

48. **Galloping General Paralysis in the Army.**—Mignot has been impressed with the rapid development of general paralysis when it once makes its appearance in the men on active service. It runs its course in months instead of years as usual. Before the war, out of 100 cases in his service, only eight ran their course in less than a year, while among the 145 soldiers since 1914, fifty of the patients have died. The privates are sent elsewhere but the officers are kept to the end in his service. Of eleven officers with general paralysis coming on during their active service at the front, four died within six months of the onset, and three in less than twelve months. Out of seventeen officers with general paralysis there has been nothing approaching the usual remissions of the disease except in one instance.

Progrès Médical, Paris

August 18, XXXII, No. 33, pp. 273-278

50 Colloidal Sulphur in Rheumatismal Affections of the Eyes. A. Bichon.—p. 273.
51 The Luetin Test for Syphilis. A. Tzanck and A. Bernard.—p. 274.
52 The Standards for Physical Effort. B. du Coteau.—p. 276.

Revue Médicale de la Suisse Romande, Geneva

July, XXXVII, No. 7, pp. 382-472

53 Comparative Study of Preparations of Digitalis. F. Heim.—p. 385.
54 Impressions on a Visit to the Neurologic Center at Lyons. R. Guillermin.—p. 429.
55 *The Mineral Metabolism with Exophthalmic Goiter. R. H. Kummer.—p. 439.
56 Congenital Atrophy of One Half of the Diaphragm. N. Betchov.—p. 455.
57 *Captivitosis. C. Julliard.—p. 464.

55. **The Metabolism of Minerals with Exophthalmic Goiter.**—Kummer devotes several pages to the metabolic findings in a man of 42 with exophthalmic goiter for two years, incapacitating him notwithstanding energetic treatment and with repose. Thyroid treatment aggravated all the symptoms, but resection of part of the thyroid cured him and restored full earning capacity. The metabolism of minerals showed the same tendency as the other vital processes, namely exaggeration and instability. In the course of the research, subcutaneous injection of calcium iodid on one occasion caused effects that impelled Kocher to add a note to Kummer's report calling attention to the action of calcium iodid in this case. He suggested a trial of it on account of its efficacy in acute tetany. "If Kummer's results are confirmed by others," Kocher wrote, "they suggest an explanation for certain correlations between the parathyroids, the exophthalmic goiter and the functions of the thyroid. Removal of the thyroid seems to attenuate the symptoms of tetany. This was particularly striking in a case of semithyroidectomy for exophthalmic goiter complicated with chronic tetany. Thyroidectomy with exophthalmic goiter acts to increase the retention of nitrogen, of carbohydrates and of fats, as our operation and experiences have established. The thyroidectomy

consequently would reduce the disassimilation of nucleins, and also would reduce the exaggerated excretion of phosphorus and calcium which Kummer's research has established. This explains the curative action of thyroidectomy in tetany, a disease which, according to McCallum, is due mainly to loss of calcium. If further experiences confirm Kummer's results, and injection of calcium iodid actually does induce in exophthalmic goiter retention of phosphorus and calcium up to positive balance, we can then understand the favorable action of calcium iodid on the symptoms of tetany." [This must have been one of the last communications from Kocher's pen. It is dated April 4, and his death followed in August.]

57. **Captivitosis.**—Julliard has coined this term to express the condition of prisoners of war suffering from symptoms resembling those of a traumatic neurosis. Their obsession to be allowed to return home from their captivity maintains the morbid condition. This obsession is to the mind what a foreign body is to the tissues. The only cure, he thinks, is to make the man realize, once for all, that he has no chance for being sent home, but must live the life of the other captives and not be pampered in the hospitals as a sick man.

Correspondenz-Blatt für Schweizer Aerzte, Basel

August 25, XLVII, No. 34, pp. 1089-1120

58 Technic for Transfusion of Blood. R. Klinger and E. Stierlin. —p. 1089.
59 *The Neurosis Problem in the Light of War Neurology. K. Imboden.—p. 1098.

59. **The Neurosis Problem by the Light of War Neurology.**—Imboden reviews the extensive literature on functional neuroses of the last three years, emphasizing that there is no essential psychologic difference between the neuroses among the soldiers and the neuroses of peace times. Human life is a struggle for existence even without the thunder of artillery and starvation blockades, and many get wounded and live on, crippled, or sink by the wayside. He remarks that the fact that so few men develop neuroses among the millions engaged in this awful warfare shows that civilization does not develop weaklings to the extent that had been feared. He regards it as significant that the professor of psychiatry at the University of Jena has recently published a manual on psychanalysis, saying that psychotherapeutic demands are now made on every physician during these years of war, and the psychanalysis movement should have general attention. Imboden declares that the one fact emerging from the war neurology data to date is the increasing appreciation of the psychic factor in the genesis of the clinical pictures of the nervous state. Nonne even advocates hypnosis in treatment, and the array of disguised persuasion methods proposed is legion: Goldstein advocates a sham injection under a few whiffs of ethyl chlorid; Weichardt the continuous bath until all the symptoms subside; Podmanizky lumbar puncture to cure abasia. The "extremely logical and extremely brutal" method introduced by Kaufmann, consisting in strong electric shocks with loud, staccato military commands to do certain exercises, has realized some surprising cures, but time has shown that relapses are liable to follow on the slightest provocation.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 2, XXXVIII, No. 61, pp. 849-856

60 Five-Day Fever. (Febbre quintana o volinica.) G. A. Pari.—p. 849.

August 5, No. 62, pp. 857-872

61 Two Cases of Mesoaortitis with Aortic Insufficiency of Syphilitic Origin. G. Binetti.—p. 859.
62 Physicians and Pharmacists in Wartime. E. Villa.—p. 871.

August 9, No. 63, pp. 873-880

63 Sternopagus Double Monster. C. Fino.—p. 875.

Riforma Medica, Naples

August 25, XXXIII, No. 34, pp. 829-848

64 Economy in Food. L. Ferrannini.—p. 829.
65 Retrograde Gangrene of the Intestine. B. Quarella.—p. 830.
66 Enlargement of Ear Suggesting Elephantiasis. C. Vignolo-Lutati. —p. 838.
67 Remarkable Progress Shown in Mobilization of the Profession in America. Editorial.—p. 846.

Brazil Medico, Rio de Janeiro

August 4, XXXI, No. 31, pp. 261-268

68 The Tuberculosis Problem at Rio de Janeiro. P. Barbosa.—p. 261. Continuation.
69 *Pituitary Extract in Treatment of Abnormal Intestine Functioning. (Acção enterocinetica da pituitrina.) A. P. Pimentel.—p. 263.

69. **Pituitary Extract to Regulate the Intestines.**—Pimentel reports ten cases which seem to demonstrate that it is possible to regulate bowel functioning with pituitary extract even in cases of habitual constipation or exaggerated peristalsis, as with dysenteriform enteritis in infants. He states that pituitary extract is harmless while its action on the bowel is prompt and pronounced. His patients were adults from 25 to 72 years old and, with one exception, none displayed any by-effects. The exception was a man of 42 who did not have constipation but took the extract as an experiment. Six minutes after the injection the bowels moved, for the second time that day, and peripheral vasoconstriction was noted, while the pulse dropped from 84 to 70. The dose was 1 c.c. of a pituitary extract administered by the usual technic. Some required three injections at a week's interval before bowel function was restored to normal. The treatment failed in one case, a woman of 72 whose bowels for fifty-four years had moved only after rectal injections. No effect was apparent from three subcutaneous injections of the extract on successive days.

Revista de la Medicina y Cirugia de la Habana

August 25, XXII, No. 16, pp. 423-448

70 *The Venereal Diseases Question. V. P. Castello and L. F. Hirzel —p. 423.
71 Return of Menstruation for Five Months to Date in Negro Woman of Ninety-Two. L. F. de Jongh.—p. 429.

70. **Venereal Diseases in Cuba.**—Castello and Hirzel comment on what has been published recently in The Journal on the measures taken in different countries to repress the spread of venereal diseases. They state that Cuba and Havana in particular are far behind in this respect. They sent one of their charity patients in turn to all the dispensaries and laboratories in town without her being able to get a Wassermann test made anywhere. Many times they have seen indigent syphilitics who had secured a dose of salvarsan but could not find any one who would inject it for them. They add that not sufficient provision for instruction in the care of venereal diseases is made in the cirriculum there. They do not approve of the idea of compulsory notification, but plead for improved facilities for teaching the diagnosis and treatment of venereal diseases, prohibition of quacks' advertisements in periodicals and the founding of dispensaries for diagnosing and treating these diseases. They state further, "The advertising of patent medicines in Cuba has become a question of fashion; 50 per cent. of all the advertisements in the periodicals are of medicines and drugs, and these exploiters of medicine have taken possession of the field of venereal diseases as their own special property. They carry their impudence so far as to advertise that this or that preparation is better and superior in its effects to salvarsan, or that this or that injection will radically cure gonorrhea. Our sanitary authorities that are entrusted with the task of watching over the public health, and the Colegio Medico, entrusted with the task of watching over the prestige of the profession, should put an end to this iniquitous exploitation. . . ." "The number of syphilitics in Cuba is enormous and is increasing every day." In one dispensary for skin diseases maintained without financial aid by one of the writers, in connection with the Hospital Mercedes, 150 of the 563 applicants since last February, or 26.64 per cent., were syphilitics.

Siglo Medico, Madrid

August 11, LXIV, No. 3322, pp. 585-604

72 Acute Malarial Ataxia. E. F. Sanz.—p. 586.
73 *Dosage for Children. C. S. de los Terreros.—p. 588.
74 Enucleation of Erythroblasts. F. Mas y Magro.—p. 592. Commenced in No. 3321, p. 566.

73. **Dosage for Children.**—De los Terreros declares that the doses for children should be based on practical experience and not on theory. The pediatrists of the longest experience are often the ones who pay least attention to the dosage

given in the testbooks, and he urges a revision of this branch of therapeutics. He is convinced that children can stand much larger amounts than those theoretically computed for them with certain drugs, and the lack of benefit from our medication is often due to the inadequacy of the dosage. He discusses in particular opium preparations, calomel, digitalis and arsenic. With arsenic in particular, small repeated doses actually confer a kind of immunity as the tissues become accustomed to the drug. He gives it usually in the form of sodium cacodylate, in the minimal dose of 0.10 gm. per day, to begin with, after a small test injection,

Hospitalstidende, Copenhagen

August 8, LX, No. 32, pp. 765-788

75 *Light Dermatitis. H. Haxthausen.—p. 765.
76 Magnesium Sulphate in Treatment of a Case of Puerperal Eclampsia. J. Kaas.—p. 776.

75. **Light Dermatitis.**—Haxthausen has been conducting research on the importance of certain substances, occurring normally in the body, for the biologic reactions to light. The work was done at the Finsen Light Institute at Copenhagen. It was found that the disintegration of the red corpuscles under the influence of chemically active light rays seems to be a process closely akin to the action of light on the skin. Certain substances in the body promote and others check this process. Albuminous substances and other colloids inhibit it, while oxygen, urea and certain elements of the bile and also hematoporphyrin promote it. The balance between these substances determines the degree of reaction to the light. There may be a preponderance of the inhibiting or of the accelerating substances normally in the body, and there may be additional factors in the form of foreign elements, or all the above factors may be combined.

Hygiea, Stockholm

July 16, LXXIX, No. 13, pp. 625-688

77 *Immediate and Remote Results of Laparotomy for Myoma. L. Lindquist.—p. 625.

77. **Laparotomies for Uterine Myomas.**—Lindquist reports one death from pulmonary embolism among sixty-five women after removal of the myomatous uterus, and one after supravaginal removal of the uterus in 121 cases. There was no fatality in his thirty-five conservative operations for uterine myomas. Forty-one pages are devoted to tabulation under twelve headings of the total 221 cases, with the immediate and ultimate outcome, the series covering eighteen years. Nearly all of the cases were encountered in private practice. Besides these 221 laparotomy cases, he had forty-two vaginal and 152 medical cases, fifteen given roentgen treatment and twenty treated with cureting. In five cases the laparotomy was done on a pregnant woman and in most of them the pregnancy continued undisturbed. The mother and two sisters of one patient in this group had required operative treatment for myomas at some time. Climacteric disturbances from the artificially induced menopause followed in 45 per cent. of the cases, but only in 41.6 per cent. of the ninety-one cases in which one ovary was left; where both ovaries had been removed, in 51.6 per cent. Classifying the cases further by the previous condition of the ovaries and tubes, climacteric disturbances were noted in 59 per cent. of the twenty-two with previously pathologic ovaries and only in 36 per cent. of those with sound ovaries. Omitting those with merely slight climacteric disturbances, the ultimate outcome was excellent in 94.2 per cent. of the hysterectomy cases and in 81.1 per cent. of the supravaginal amputations. Evidences of malignant degeneration were found in fourteen cases; seven of the sarcoma patients are still living. The interval in one case since has been over seven years and in two over three; one died from heart trouble after four years.

Norsk Magazin for Lægevidenskaben, Christiania

August, LXXVIII, No. 8, pp. 889-1016

78 *Pulmonary Tuberculosis in Norwegian Province. (Om lungetæringen i Finmarken.) A. Holst.—p. 889.
79 *Disease of Optic Nerve Originating in the Nose. A. Galtung.—p. 921.
80 Factors in Epidemicity. (Hvorledes man finder Genius epidemicus.) A. Magelssen.—p. 939.
81 Classification of Mental Diseases Now and in the Past. H. A. T. Dedichen.—p. 948.
82 *Sarcoma Inducing Ascending Paralysis. L. Sommerfelt.—p. 968.

78. **History of Pulmonary Tuberculosis in Norwegian Province.**—Holst analyzes and comments on the mortality from pulmonary tuberculosis in Finmarken. It has jumped from 0.56 per thousand living in 1875-1879 to 2.44 in 1910-1913. The corresponding rate for the whole country was 1.22 and 1.73. The type of the disease in Finmarken seems to be of a more rapid course than elsewhere. He is inclined to ascribe this and the prevalence of the disease to the improved traffic facilities and the fact that it is a comparatively virgin soil for tuberculosis. Holst remarks in conclusion that although the tuberculosis mortality throughout the country is comparatively low, yet the number of cases of pleurisy, which is almost inevitably of tuberculous origin, seems to be on the increase. He queries whether other remote provinces, virgin soil for tuberculosis, may not be facing a similar rise in the tuberculosis mortality as means of intercommunication are extended and traffic facilities improve.

79. **Optic Nerve Trouble Originating in the Nose.**—Galtung relates that it is exactly 100 years since Beer in 1817 first called attention to the close connection between disease in the nose and in the eyes. Galtung discusses this field and the literature on it, especially affections originating in the nasal accessory cavities and involving the optic nerve but without causing an abscess in the orbit. Even when there is manifest disease in an accessory sinus, it is necessary to exclude alcohol and tobacco poisoning, multiple sclerosis and syphilis, before incriminating the sinusitis in the etiology of the optic trouble. In a recent case a man of 30 had multiple sclerosis and ethmoiditis and also retrobulbar neuritis. As the latter persisted after the cure of the ethmoid disease, he ascribes it to the multiple sclerosis. Another patient, a man of 45, had disease in both the ethmoidal and sphenoidal sinuses, and this was evidently responsible for the optic nerve trouble. It was in an advanced stage, vision being considerably reduced. There was also peripapillary and paracentral scotoma. The van der Hoeve symptom was positive, and the operation on the cavities showed that the posterior recesses had been invaded. As soon as the accessory cavities were cleared out on one side, the scotoma on that side subsided, but on the other side it persisted unmodified until this side had been operated on also. The scotoma then subsided entirely and vision improved.

82. **Sarcoma in Spinal Ganglion.**—Sommerfelt has not been able to find in the accessible literature a case like the one of which he gives an illustrated description. The patient was a man of 28 and the symptoms indicated ascending paralysis. Necropsy revealed a sarcoma at the twenty-fourth left spinal ganglion, about 35 mm. long by 20 wide. It had a fibrous capsule and was connected with nerve roots, but it lay entirely outside of the spinal canal. There are twenty-one cases on record of tumors in the gasserian ganglion, including three sarcomas and four endotheliomas. Anatomically they resemble this case, but clinically differ completely from it as the symptoms are only those of a brain tumor plus symptoms on the part of the trigeminal nerve.

Ugeskrift for Læger, Copenhagen

August 2, LXXIX, No. 31, pp. 1287-1328

83 *Lipemia in Rabbits during Anemia from Hemorrhage. V. Ellermann and E. Meulengracht.—p. 1287.
84 Abbott's Method of Treating Scoliosis. E. Nyrop.—p. 1297.

83. **Lipemia in Rabbits.**—Ellermann and Meulengracht report considerable research on lipemia induced in rabbits during anemia from losses of blood. Their tables and other data confirm Milne's assertion (1913) that extremely pronounced lipemia develops in rabbits after severe hemorrhages but not under the influence of toxins. The cholesterol content of the blood increases along with the fat content. The fat seems to be derived from fat deposits in the body. For its passage into the blood, the loss of the blood serum—with loss of its fat-splitting ferments—is probably responsible.

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GRADUATE EDUCATION IN THE CLINICAL BRANCHES, AND THE MINNESOTA EXPERIMENT *

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MINNEAPOLIS

On the 24th of May just past, in the faculty room of the Medical School of the University of Minnesota, Rood Taylor was examined for the degree of Doctor of Science in Pediatrics. About ten persons were present. These included the associate professor of pediatrics, presiding in the absence of the chief of the department; two professors of anatomy, one of whom has specialized in the anatomy of the infant; one professor of physiology; two of medicine, and an associate professor of chemistry.

For more than two hours a lively game went on across the invisible net separating faculty and student. One after another the professors served swift questions; and the answers came back, usually, fair in the court—sometimes (be it whispered), lobbed quite over the heads of the faculty players! Occasionally, however, the young player's racquet seemed full of holes, and the questions went past him into indefinite vacancy.

First he was asked about his thesis, which happened to be on "Hunger in Infants," an extension of the work done here at Rush by Carlson and Ginsberg. Then followed inquiries of more general scope, on the diseases of children, on anatomy, on physiology, on medicine. Finally the professor of chemistry, field of the candidate's minor, contributed interrogatories concerning hydrogen-ion concentration.

At last the game was declared a "love set"; the candidate, who had really done very creditably, was voted "passed"; and all went home without thinking that they had taken part in an occasion that may come to be considered one of the historic marks in the advance of medical education; for the examination of Dr. Taylor was the first ever given for an earned doctor's degree in a clinical subject.

To some phases of the experiment leading up to the granting of this degree I invite your attention.

As I see it, the fundamental elements of the situation are expressed in six almost self-evident propositions:

Proposition 1.—The important facts of medical science have become too many for one man to know, and the necessary technical processes have become too complex and numerous for one man to master. Division of labor or specialism is advantageous and unavoidable. This is true alike for better practice and for surer progress.

Proposition 2.—Systematic graduate training in the clinical specialties, including advanced work in the underlying sciences, is a necessity. This means cooperative and coordinated educational processes.

It is true that the first specialists had to make both themselves and their specialty. It is true that many excellent men in every profession have been self trained. Nevertheless, both economy of effort and the legitimate interest of the public demand that the education of specialists be systematized and standardized.

Proposition 3.—The safeguarding of the public demands some method of certification for specialists. This is, perhaps, quite as important as the primary certification or licensure. How is the average citizen at the present time to proceed in order intelligently to select a competent surgeon? The answer is, "It can't be done." Perhaps as good a way as any is that of the Minneapolis lady who went into a big office building, stood in front of the directory of physicians, closed her eyes, said a little prayer, put out her hand, and had her appendix removed by the physician whose name her fingers thus blindly hit on. If she found a competent man, it was a miracle, or else a lucky chance; for in that directory the names of the experienced and the inexperienced, the highly trained and the self-announced, stand forth in type of equal size.

Proposition 4.—The progress of medical science is of the utmost importance alike to individual human need, to civilization as a progressive ideal, and to the profession of medicine as a satisfying life work for men of the best intelligence.

Proposition 5.—The leaders of medicine as exemplified by the class of specialists should be more than practitioners. They should be scientists.

Real success in practice demands scientific method and the scientific spirit. Leadership in the profession should rest on productive scholarship. The education of specialists should be planned with that end in view.

Proposition 6.—The progress of medical science demands more and more rigid scientific preparation on the part of all physicians, but particularly on the part of investigators. Some one has said that the future great discoveries of physics will be made in the sixth decimal place. In a similar way, it seems to me, refinements of quantitative methods and a more comprehensive, intelligent and exact use of statistics are likely to add most of the great new truths of medical science. Nothing is fully known until it can be expressed mathematically. All this implies more rigid training for the medical investigator of the future.

Every one of my six propositions involves a task appropriate to a university. The practical questions arise as to the extent to which a given university may undertake these tasks for the medical specialties, and how to go about what is undertaken. At the Univer-

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* Read at the Commencement Exercises of Rush Medical College, June 13, 1917.

sity of Minnesota we are feeling our way in both these particulars, and some account of our experience will be more valuable than further theoretical disquisition.

First, however, let me say that for years every good medical school in the country has been doing graduate work in the clinical branches and is doing it now. It is unsystematized and for the most part unrecognized; but nevertheless in the clinics and laboratories there are always young graduates, as voluntary assistants, whose chief purpose is to learn. Many of the best men on the faculty of Rush Medical College were undoubtedly thus trained. They were not formally instructed; there were no requiremnts of entrance, attendance or examination. No degrees marked the completion of their postgraduate education. Nevertheless the men worked in a university atmosphere. The equipment and libraries were at their disposal. The critical guidance of the master was unconsciously exerted. These are not self-trained men in the sense that I have previously used that term. They are university products. What we have attempted to do at Minnesota is to systematize what was already going on in our university (as in others), and give it consciousness and individuality.

As soon as one attempts to systematize, one discovers lack of symmetry. As soon as one attains consciousness, new phases of endeavor open to view. Both these experiences have been ours at the University of Minnesota. From a vague feeling of the need of systematic education in the medical specialties, we have come to realize the need of training for medical research, for medical teachers and for the higher walks of practice. At the present time one may perhaps regard our effort as an officers' training school preparatory to the larger work that must attend the drilling of the entire army of specialism, a task gradually to be accomplished, I hope, through the united effort of the universities and clinics of the country.

THE ADVANCED DOCTOR'S DEGREE IN MEDICINE

As far back as 1910, our faculty, impressed with the need of graduate training for surgeons and of standardizing surgery as a special branch of medical science, decided to organize a two year course and offer a special degree. A course in ophthalmology was also proposed; but, owing to various causes, the matter was postponed. In the spring of 1914, however, the question was revived, and with it the perplexing question of assistance in our teaching clinics. It was argued that if the same hired assistants were used year after year, the graduate educational opportunities of our clinics would be largely lost; that it was better to have a change from time to time—better in the sense that more medical graduates would obtain added training while assisting. We decided, therefore, to combine a fruitful idea adopted from the University of Michigan, namely, the full-time small salaried clinical assistantship on limited time appointment, with our original plan of an advanced course leading to a graduate degree. We started with six teaching fellowships on a three year basis on progressive annual stipends of $500, $750, and $1,000, and arranged that the successful completion of requirements to be formulated should lead to the degree of Doctor of Science in the specialty concerned; for example, D.Sc. in Surgery or D.Sc. in Ophthalmology.

These requirements have gradually been worked out in practice under the Graduate School Medical Committee, and are as follows:

1. Requirements for acceptance as a medical graduate student: (*a*) a bachelor's degree or equivalent (which may have been obtained in a combined B.S. and M.D. course); (*b*) an M.D. degree from a good school, and (*c*) a year's internship in an approved hospital.

2. Requirements for the advanced doctor's degree: (*a*) at least three years of graduate study distributed chiefly between a major subject and one or two supporting or minor subjects; (*b*) a reading knowledge of German and French tested by special examination; (*c*) an acceptable thesis, which must contain the results of original investigation, and (*d*) final written and oral examinations before committees of the graduate faculty.

It will be noted that the requirements for entrance to graduate work in the clinical branches of medicine are higher than those for graduate work in any other department in the whole university. This is due to the peculiar position of the clinical subjects with respect to dependence on a number of sciences and because a reasonable experience in practice, for example, an internship, is desirable before graduate study begins. Apart from this difference as to entrance, the requirements are substantially those required in the good universities for the degree of Doctor of Philosophy, or for that of Doctor of Science when the latter (as at Minnesota) is given as an earned degree.[1]

As to the division of the candidate's time, it appears that approximately one third to one half will be devoted to the major (exclusive of thesis), and will include the clinical and technical experience necessary to insure fair skill in the specialty chosen; from one fourth to one third will be spent in the fundamental laboratories, and from one fourth to one third on the thesis. This again is not unlike the distribution of time usually worked out by a Ph.D. candidate in any of the sciences.

As to the individual program, it was apparent from the start that no two men could be trained exactly alike. Graduate education can be done only to a limited extent in classes, and in the clinical branches apparently hardly at all. It consists essentially in placing the competent student in contact with the materials, apparatus and other facilities of learning and allowing him, under suggestive and critical guidance, to educate himself. Consequently, each student has an adviser; and with him and the dean of the graduate school, the student works out his general program for the three years' course and his specific work from semester to semester, which program must finally be approved by the graduate school medical committee.[2]

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[1] I cannot entirely agree with Dr. L. B. Wilson (Science, 1917, n. s., **46,** 127) that an advanced degree in medicine stands for more than an advanced degree in a fundamental science. It is true that the medical man has much knowledge that the other lacks. So also a Ph.D. in Chemistry has much knowledge a Ph.D. in History lacks. It is true that more time beyond the bachelor's degree will be required for the doctorate in a clinical branch than for a doctorate in pure science. But the Ph.D. or D.Sc. represents not time essentially, but rather attainment in science, and particularly in research. In this respect, the advanced degree in medicine will mean the same as that in any other branch of learning.

[2] Following is the three year program of Dr. McWhorter, fellow in surgery: For the year 1913-1914 (including summer) and first semester, 1914-1915; mornings in the university hospital as assistant and in charge of clinic clerks (undergraduates); did minor operations. Afternoons divided beween anatomy, pathology and experimental surgery. Second semester, 1914-1915, summer and first semester 1915-1916; forenoons, largely independent work at the hospital; did 150 major operations (under supervision when necessary). Afternoons, two thirds on experimental work (completing thesis); one third teaching surgery on cadaver and on animals. Second semester, 1916-1917, at Rochester, working in the Mayo Clinic in cystoscopy and roentgenoscopy. Dr. McWhorter published, besides his thesis, an original paper in anatomy and one in experimental surgery.

In the fall of 1914, then, under general ideas, since that time worked out in detail as described, and with the nucleus of teaching fellows, to which a few other students were added, graduate work in the clinical branches began at the University of Minnesota.

INSTRUCTION AT THE MAYO CLINIC

While all this discussion and preparation through several years had been going on in the university, the Mayo Clinic at Rochester, unhampered by tradition, and on the other hand, in a measure, unguided by scholastic ideals, had gradually developed into an informal graduate school and research institute. The young physicians hired as assistants could not help but learn many things in handling the large and varied material of this clinic. This was the absorption process to which I have already referred as a form of graduate work always going on in medical school clinics.

The absorptive process acts best on the prepared pabulum of well established routine. It contributes well to the learning of technic and to the acquisition of practical experience, but not so well to the gaining of solid foundations in science or to the stirring up of research aspirations.

Gradually at the Mayo Clinic a more conscious effort was made to give instruction. Men were employed to carry on research, and their assistants were guided in investigation. The library was strengthened and the laboratories were thoroughly equipped. By 1914, as I have indicated, it would have been entirely appropriate to speak of the Mayo graduate medical school, although there was no formal organization of that name. No degrees were granted, nor was there any course of study or legal authority. The assistants were called fellows, but no condition of appointment except the possession of an M.D. degree was imposed. The fellows stayed in the clinic varying lengths of time, but usually three years. Many of the earlier ones were taken into the organization.

Meanwhile also the Mayo brothers had been accumulating a fund with which to endow the work of their institution. By the fall of 1914 this fund had reached a milion and a half. Moreover, it had become clear to the Mayos that the endowment would best fulfil their fundamental purpose if the income were perpetually devoted to medical education and research.

At this stage and proceeding on the initiative of the state university, the proposal was made that the clinic affiliate itself with the medical school for the cooperative conduct of graduate medical education according to the plans which the medical schol had formulated. For the carrying out of this proposal the educational and research work going on at Rochester was separated from the clinic and incorporated under the name of the Mayo Foundation for Medical Education and Research. All exclusively scientific workers became employees of the foundation. Others were exclusively clinic employees or were employed part time in each institution, according to the distribution of their work between research and the money-making medical practice of the clinic.

This arrangement was made and the foundation was created, in order that association between the university and a private business might be avoided. Those in charge of the negotiations on both sides believed, at the time, that such a connection would be "wrong in principle," since one of the parties to the proposed arrangement was a state university. The plan, therefore, was to affiliate the foundation and not the clinic with the university. We believed that this was legally and educationally feasible. The preliminary documents were drawn up from this point of view.

However, as many know, the proposed affiliation did not escape criticism. On the contrary, an organized effort was set on foot to defeat it. In two successive legislatures strong efforts have been made first to prevent and latterly to annul the affiliation. The university has won both struggles, and public opinion is certainly in favor of a continuance of the cooperative experiment entered into by the University of Minnesota and the Mayo Foundation, for the trial period of six years agreed on in 1915.

I mention this controversy, not simply as an item of historical interest, but because out of it has come a change of ideas, in my own mind, at least, concerning the fundamental relations involved. I have frankly come to believe that our municipal and state educational systems do wrong to stand aloof from practical business. The purpose of our schools is to prepare men broadly for life. Surely practical training, say of a physician, is part of such preparation or education. To confine such practical training to practice on paupers in public institutions limits opportunities, is undemocratic, and savors of phariseeism. The ideals of education must not be considered something holy and apart; something enshrined and cloistered; something robed in white and to be kept unsullied from the world. No, the ideals of education are to be taken into every-day life and used to lift it up.

I think the Cincinnati plan of engineering education should be carried down into the high schools and should embrace all sorts of trades and professions. It would tend to democratize secondary education and to give it seriousness and purpose. It would prevent the abrupt cutoff between those who go into the trades and those who go into the colleges and learned professions. I believe, to be more specific on the question of medical education, that eventually every ethical private clinic in the country—every clinic large enough to afford advanced training for even one young medical graduate—should be affiliated with some university which should have the power to supervise that man's graduate training and in the end should attest, after proper examinations, his technical proficiency.

Just exactly as the engineering student at Cincinnati gets his practical work in shops or building construction in actual operation under private management and his theoretical training in university classes, the whole being finally attested by a university degree, so also the proposed medical specialist should get further practical training in actual practice under other specialists, and further scientific training in university laboratories, the whole contributing to the diploma or certificate which should confer his moral, if not his legal, right to work independently. I estimate that this is the only way by which the universities can contribute in any large measure to the practical training of specialists and can assume the responsibility for their certification before the public.

This is a large task—one to be undertaken conservatively and gradually, but nevertheless without delay or temerity. Careful supervision, careful selection must be exercised. The leading specialists must be urged and taught to make their clinics more than places of business. The cooperation of the College of

Surgeons and of the special societies must be sought. But the universities must take the initiative and assume lasting responsibility. The undoubted reflex effect of a university connection should appeal to competent specialists and make the task of securing their cooperation easy. As the state-wide campus has become the watchword of agricultural colleges and state universities, so the nation-wide clinic should be the ideal in the training of medical specialists.

Coming back to the University of Minnesota and its problems, I believe that the university should maintain close relations with the Mayo Clinic, a private business, just as long as that private business is properly conducted and furnishes facilities for education. I believe that the university should see that the business is kept honest and proper. If in this sense the affiliation should prove a perpetuating agency, as charged, I should be glad. Surely at the present time the prestige of the university can add nothing to the Mayo Clinic; but that the ideals of education and research should become a stabilizer and ruling motive of all private business is a consummation devoutly, yea reverently, to be wished. If this confession of heresies rejoiceth the soul of our opponents in the "late unpleasantness," I shall also rejoice.

Moreover, our controversies over the affiliation have led, I think, to an earlier clarifying of the eventual legal relations of the foundation to the university than might otherwise have occurred. It is now plain that the Mayo Foundation will be a definite part of the University of Minnesota, being indeed the name of an endowment fund for graduate medical education and research wholly controlled by the board of regents. As a separate corporation, the foundation will cease to exist when the trial period is over. Moreover, in case the clinical facilities at Rochester should degenerate, it will probably be possible for the university to remove all of the work to other places, which some people think may some time be desirable.[3]

RESULTS OF AFFILIATION

So much by way of digression. I now return to my main theme. By the opening of the session of 1915-1916, the temporary affiliation (not with the medical school, as originally contemplated, but with the graduate school), was in effect. Members of the foundation staff at Rochester had been made members of the university graduate faculty, and those fellows at Rochester who could qualify were enrolled in the graduate school. We have had, therefore, to date three years' experience at Minneapolis and two with the Mayo Foundation. What have been the results?

In the first place, to some extent at Minneapolis and distinctly at Rochester, the effect of the graduate school standards on the quality of men appointed as fellows and admitted as students has been marked. It is doubtless clear to all that our experiment is one in intensive education and that we are not at all concerned in this discussion with short courses for ordinary practitioners who desire to "brush up," although the desirability of such courses, in case they can approach the antebellum standard of Vienna, is freely admitted. For such short courses admission standards would defeat their avowed purpose; but for real graduate work the sorting of candidates is important. The graduate school has the machinery and long established standards for this purpose. This is one reason why graduate work in medicine should be in the graduate school and not in the medical school.

Counting the fellows at both places, and a few others, we have had, during the past year, fifty-eight graduate students in clinical subjects at Rochester and seventeen at Minneapolis, or a total of seventy-five. These are distributed as to major interest as follows: medicine (including neurology), 15; surgery (including orthopedics), 46; obstetrics and gynecology, 2; ophthalmology and otolaryngology, 7; pediatrics, 5. These seventy-five students did their undergraduate work in twenty-six different medical schools, so that we have in our graduate school in the medical group quite as cosmopolitan a body of students as in any other division of the university. We believe this is desirable.

Seventy-five students do not seem a large number,[4] yet it is apparent that our facilities, including those at Rochester, will accommodate only a few more. Probably few universities having undergraduate teaching obligations could give good training to more graduates than Minnesota. Moreover, the number eligible for degrees theoretically might annually be one fourth or at most one third of the student number; say, fifteen to twenty a year from Minnesota. It is such calculations that have caused me to state that if the universities are really to be an effective factor in the training of specialists, they must affiliate with themselves a large number of private clinics.

The University of Minnesota has taken a step in this direction in its recent approval of the clinics of Dr. Todd in Minneapolis and Dr. Burch in St. Paul, for practical training in ophthalmology. Each of these men agrees to support one fellow who shall divide his time between the private clinic and the university. This fellow is to be allowed one half of the first year's graduate credit for strictly technical and diagnostic work in the clinic, but not more, unless clinical work of a higher type than ordinary routine office procedure shall be provided and "evidence of satisfactory productivity in investigation connected with this work be furnished." These provisions indicate the type of university control that we deem to be necessary in affiliating private clinics.

Many other phases of interest from our experience might be noted, but I prefer to confine myself to those which have come to the front in connection with the presentation of the first group of candidates for the advanced doctor's degree. We shall grant four such degrees at our commencement tomorrow; and they will be, as I have indicated, the first ever conferred in clinical science. I shall note at random some interesting happenings of the past few weeks.

First as regards degrees: As I stated, we offer the degree of doctor of science, this having been always an earned degree at Minnesota. One of our candidates, however, asked for the degree of doctor of philosophy in surgery. This was Dr. McWhorter, a Rush graduate known doubtless to many of those present. His request was granted.

Now the question presents itself, should not the Ph.D. degree indicate the highest earned distinction in surgery or medicine as well as in physiology or chemistry? I think it should, and that Dr. McWhorter in making his request showed a fine appreciation of the desirability of continuity and uniformity in academic degrees. New degrees always have indefinite significance.[5] The Minnesota experience shows that graduate work in clinical science can be conducted under the same standards and rules as graduate work in laboratory science, or in social science, or in agricultural science, or in languages. No new degrees should be introduced until the old ones distinctly fail to meet the need. I doubt not that those who will guide your new graduate work in medicine here at Chicago will take this view, and I trust that the Ph.D. degree, the honorable mark of so many Chicago men who are leaders in all the fields of natural and social science, will be the mark also of those who go out from here as leaders in clinical science.

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[3] Since the delivery of this address, a proposition to the above-mentioned effect has been made by the Drs. Mayo and accepted by the regents of the University of Minnesota. The foundation is now an integral part of the university.

[4] In addition to these, twenty-eight were enrolled in the fundamental departments, anatomy, physiology and physiologic chemistry, pathology and bacteriology. Of these, ten worked at Rochester, and eighteen at Minneapolis.

Medical men are, I believe, unfortunately disposed to look lightly at the word "philosophy." It seems to them to connote unpractical theorizing. I should like, as a long resident but never quite a naturalized citizen of medical land, gently to chide my clinical brethren, for I think that quite as much unpractical and unscientific theorizing is raised per acre in the clinical field as anywhere else in the broad world of learning—and think how many acres there are in that field! One of the most striking features, by the way, brought out by the recent examination of candidates at Minnesota was the lack of philosophical and historical background for their knowledge. Medicine is top-heavy and ever spreading. How to keep the foundations solid and commensurate with the superstructure will always be a big problem in graduate medical education. The philosophy and history of science and of medicine should find a place in every scheme of graduate study.

Each of our students works, as I have said, under an advisor. It is but natural, therefore, that considerable diversity should exist in the courses which have been pursued by our candidates for degrees at this commencement. Some advisors lean more to the practical side than others and neglect the fundamental sciences. Some advisors have kept their students in contact with cases to the practical exclusion of opportunity for research and reading. An apparent result of this policy is seen in the fact that the theses of two candidates were rejected as inadequate for the doctor's degree, from the standpoint of original investigation. These candidates were accepted for a master's degree. Their examinations revealed a grasp of diagnosis and practical surgery quite equal to that of any of the others. They lack only the evidences of original research.

All this shows that we shall fight again, and every graduate school of clinical specialities will fight again, the old battle in education between the theoretical and the practical, between pure science and applied science, between principle and method. A recent setting of the question as applied to army officers is beautifully put by Donald Hankey in his book, "A Student in Arms." He finds, as all must find, that both the university and the practical school (in his case the military school) have something necessary to contribute. I recommend his essay to all interested. Beyond a few dogmatic statements I shall not go into this question.

I believe in a solid scientific foundation for the undergraduate medical course and a few feet more of well-seasoned concrete for the big guns of specialism. I point to the fact that the physician will see sick people all his life; chemical and anatomic laboratories, probably, for a limited period only. I hold strongly to the doctorial thesis, first, as evidence to the faculty that the student has caught the scientific idea; secondly, as evidence to the scientific world of the type of work the university is doing. I believe, finally, that that thing you call judgment—surgical judgment, let us say—which is so much more than manual dexterity or delicate sensory discrimination or intelligent understanding of isolated phenomena, is better developed from a hundred cases studied exhaustively, considered in all aspects, read up in the literature, worked over in the laboratory, than from a thousand cases passing, with blending after-images, in the rapid cinematograph of hospital routine.

All this makes me believe that at the Mayo Clinic, and in all places where clinical graduate work is undertaken, the student must be held back from clinical plethora, from engorgement with routine observation, diagnosis and care of the sick. He must be given time for laboratory and library work; for meditation and expansion; for the development of originality and the evidence therof—his doctorial thesis. If we don't do this, the research aspects of our work will dwindle away. Our product will be trained and safe, but sterile. Our graduate medical schools, of which so much is just now expected, will be amplified, but not glorified, polyclinics.

And for all these reasons I believe that graduate work in medicine should be closely allied and alined with and, indeed, a part of the regular work of the graduate school. The restraining hand of the dean controlling the graduate work of all the arts and sciences may save the youngest child, medicine, from many a disastrous fall.

But over against the necessity for substantial science as part of clinical graduate work, I see the need for the technical proficiency that comes from repetition and for the diagnostic skill that is not so much born as derived from repeated observation. We shall always have to compromise between the theoretical and the practical. The question is where to draw the line. I say, keep it safely on the side of science.

In this connection I wish to present the case of one of our candidates which illustrates an unexpected turn of our educational machine. This man for three years held a fellowship in internal medicine. He was most ingenious in attacking all kinds of problems dependent on refined physical apparatus. His interest and thought were all in this direction. He was full of problems and of enthusiasm for research. But his examination developed that his knowledge of internal medicine was hardly better than that of a senior student, and he frankly confessed that he had no interest in practice. Our whole plan had been to produce a combination of scientist and practitioner; but here the amalgamation failed from the practice side, just as with others, in a measure, it had failed from the science side. It was plain that the degree of Doctor of Science in Internal Medicine as a mark of a trained specialist was a misnomer for this candidate.

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[5] Some years ago a student applied for admission to the St. Louis University Medical School, presenting a certificate indicating that he had an "M.A." degree. The college issuing the certificate was an unknown Kentucky institution; but I judged that its master's degree must be at least equal to a high school diploma (at that time our standard entrance requirement), and therefore admitted the candidate. It soon became apparent that he could not carry the work of the medical course, and inquiries developed the fact that the degree he possessed was "Master of Accounts!"

He was given the degree of Doctor of Science without designation as to department.

Of the various requirements for the advanced degree the reading knowledge of French and German has been, in our experience, the hardest for medical graduate students to meet. Although all of our candidates had at least the two years of college work that is now the accepted minimum standard of entrance to the better medical schools, their linguistic training was evidently very weak. Moreover, during their period of fellowship, particularly at Rochester, they do not appear to have been impressed with the necessity of acquiring the languages and using them as tools. I feel that this is evidence that the advisers of these students did not point out the library as the great repository of knowledge and did not insist on systematic reading.

A knowledge of the principal languages of science is a universal requirement for the Ph.D. degree. The degree in medicine cannot be placed on a lower level than that in history or psychology or chemistry. Moreover, the enormous medical literature in German and French renders it imperative that every investigator and every progressive practitioner should know these languages. Otherwise, he can never keep abreast of the times and must always get a large part of his knowledge through belated and abbreviated abstracts. When the war is over, the commerce of science will be reestablished and its essential medium of exchange is found in the three great languages, English, French and German. They are, moreover, a mark of culture and a guide to that tolerance and sympathy which are characteristic of a true scientist. For all these reasons the graduate school at Minnesota adheres to the language requirement for advanced degrees in medicine.

There are other questions raised by our experiment to which, if time permitted, I should like to direct attention. For example, to what extent should graduate work in clinical science be subsidized, as, for example, by our system of fellowships? Of course, these are really assistantships. The recipient of a stipend earns it. The question may be raised whether young doctors without financial aid, after the long and expensive M.D. course, can afford the time and money for such a term of graduate study as I have described. Would our plan, if made universal and not subsidized, tend to shut out the poor man from the higher walks of medicine or unduly delay entrance into specialism? I leave this for you to consider. The question as bearing on undergraduate medical education has been touched on editorially several times in The Journal of the American Medical Association.

Likewise, it would be a delight to consider the proposed new degree for specialists who are so lacking in energy that they cannot produce a thesis, namely, the degree of "Doctor of the Practice of Medicine." In imagination I can see this striking trademark stenciled on the smug and satisfied sacks ground out by every so-called "practical" educational mill in the country. But I hope that neither "now" nor "eventually" will the "Doctor of the Practice of Medicine" be added to the grist of medical degrees produced near the Falls of St. Anthony.

CONCLUSION

Passing by these interesting topics I feel that I should attempt to point out to you, the members of this graduating class, how the new movement in medical education may relate itself to, and possibly change, the practice of medicine into which you are about to enter. The next thirty years will be your generation—yours of all the thousands of generations of men; yours to grasp, to shape, to live. In it you will make your mark deep or shallow, enduring or without a visible trace. But it will also make its mark on you. What are the changes to which you may have to adjust yourselves?

What, first, of private practice? There are those who will tell you that private practice is going out; that the old family doctor is already dead. They say that in these days of organization and cooperation, of hospitals and automobiles, of specialism and efficiency, there is no room for the family doctor.

There are those who argue for the family health officer to keep everybody well and turn over to the appropriate specialist any who by unreasonable chance become ill. Others see the whole medical business socialized, and medicine, like education, supported by the state as a free gift to the people. The group system has its advocates and has made notable progress.

I am in sympathy with all these movements. They should have your careful consideration, and to such extent as may be, they should work themselves into the life complex of your generation. Moreover, the evils of the present competitive system of medical practice, with its dollar baiting, its unjust distribution of emoluments, its inability to render equal and the best service to all classes of mankind, are apparent and must be improved wherever possible.

Nevertheless, I perceive that the practice of medicine is deeply rooted in that thing we call human nature; that it gets back and down to the fundamental instinct of survival, and rests firmly on the eternal rigidity of protoplasm. Changes will undoubtedly take place in the practice of medicine. Perhaps we can foresee the trend of such changes. We may admit that this is an age of unusually rapid social evolution. But still we must see that it is evolution. New species do not spring unheralded from the inorganic world. I predict that general practice will endure, will adjust itself to specialism and to group medicine and to public medicine. In the ecologic relations that shall be developed I predict that the ancient plant of private practice, rooted so deeply in human nature, will still be the center around which the newer varieties will flourish.

Certainly it is not hard to prophesy for the next thirty years and to declare that most of you for several years and many of you for life will be family doctors; better age for age and stage for stage, than your fathers, but following, nevertheless, essentially in their footsteps and entering into the same intimate personal and family relations with your patients. I think you should look on that as a good life, and that something more than the current and "exaggerated" rumor as to the demise of the family doctor should be needed to drive you from the ancient and honorable and useful career of private practitioner.

At the same time all of you should study and take part in the new movements in medical practice. Some of you, under favorable circumstances and in favorable localities, will, I trust, take part in those cooperative ventures that are coming to be known as group medicine. Some of you will be in public health work as school physicians and the like. I trust you may hit on a happier day than this and be able to treat as well as diagnose. At present, the school physician says, "Yes, you have diphtheria. Run along and see a doctor." It is as if, when a man is attacked on the street, the policeman should say, "Yes, you are being robbed. Hustle quick and hire a private watchman to defend you."

Others of you, finally, will prepare for the higher but narrower work of specialism. You will bear in mind that every narrowing of interest tends to narrowing of sympathy. You will do your best to counteract this tendency. As the field of view becomes smaller, as in the microscope, you will cultivate that imagination which can see the whole. You will recognize the need of further training and will not be content with a specialism that is self-announced and without foundation.

You will not be content to repeat in indefinite sequence the procedures and practices of others. You will not be satisfied to be resonators. You will sound a note of your own. You will find out something new. You will go forward to your special work, if not with an advanced degree, such as I have described, at least with a training and with ideals approximately such as are here laid down. You will be scientific specialists—scientific surgeons, scientific pediatricians, etc.—and to your work will come a pleasure and a compensation not to be found in routine, and not to be derived from much doing and much getting and much hoarding away.

THE MENACE OF MOUTH INFECTIONS *

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There is no more impressive sequence than the presence in a patient of a disease or abnormal condition, such as infected teeth or gums, and the later surgical eradication of the focus of infection; or, to make the sequence terse and logical, let us put it thus: patient; ailment; crowned, bridged or decayed teeth, inflamed gums, or pyorrhea, or all of these things; roentgenograms of these suspected areas demonstrating pus and degenerated bone; operative demonstration of pus sinuses and cheesy, broken-down bone; and lastly, but unfortunately not always, the cure of the patient.

In this age, in which the laity has acquired from periodicals a smattering of medical science, and therefore thinks it has a perfect right to criticize medical men and to ridicule what they term "medical fads," let me urge that the nearest relative of the patient be present at the dental operation, and be placed in close proximity to the foul tooth, foul crown, or foul pus that is extracted from the mouth of the loved one. I know of no more impressive demonstration to the ordinary layman, and he often becomes a hysterical enthusiast for the removal of infected teeth, or even of those that may possibly be infected.

MENACE OF CROWNED TEETH

Cruelly awakening to the physician is the demonstration of a bacterium in the blood or in a distant lesion, and a late demonstration of the same germ in an extracted tooth or in the secretions of a pocket in the gum. I do not believe that there is a greater menace to health today than crowned and bridged teeth, to say nothing of imperfectly filled and dead teeth, and of pyorrhea alveolaris. Furthermore, infection of the tonsils and the sinuses adjacent to the nose must never be overlooked. If such infection has not caused symptoms, it will do so, and its eradication is the only safety.

From infected areas in the mouth many pathogenic organisms have been isolated, probably the most dangerous being the pneumococcus and the *Streptococcus viridans*. We do not know how many pneumonias, following or accompanying influenzal affections, occur, because pneumococci are being carried in the mouth. We do not know how many times irregularity, weakness and actual disease of the heart are due to germs harbored in the mouth. Neither do we know how frequently the *Streptococcus viridans* is the cause of heart disease or adds its fatal potency to an already established chronic disease.

We do not know much about the *Endamoeba buccalis*, but we do know that it is probably always accompanied by other germs, and especially by the pyogenic germs. Pyorrhea alveolaris is unquestionably due to infection, but this kind of infection and inflammation does not often occur unless there is degeneration of the gum tissues, and such degeneration most frequently occurs after 40 years of age. It may be here noted, parenthetically, that chronic colitis, or at least decomposition in the colon, also occurs most frequently after the age of 40, and both of these conditions are very frequent in people in middle life. Is the intestinal disturbance a sequence of the mouth infection?

Connellan and King[1] have isolated a nonpus-forming diplococcus which they believe produces dangerous toxins. They find these germs in the crypts of tonsils, and patients suffering from arthritis, asthma, endocarditis, myocarditis or nephritis have been found to harbor these germs in their mouths. They advise producing an autogenous vaccine and using this for some time before such diseased tonsils are eradicated.

It is not my purpose either to offer or to discuss roentgenograms of damaged teeth and gums; but let me assert that no dentist should devitalize, or attempt to fill the roots of a devitalized tooth, which is to be preserved, without the aid of roentgenograms; that every case of pyorrhea alveolaris, every suspicious root, and occasionally all crowned and bridged teeth should be subjected to the scrutiny offered by the roentgen ray. It is useless to agree on the removal of one infected tooth and possibly leave other infected teeth in the mouth of the patient, and yet such carelessness is repeatedly agreed to by both physician and dentist. Also, it is difficult to compel a dentist to operate immediately on all infected areas. He does one thing at a time, and then takes up something else. What surgeon would remove one point of infection and leave half a dozen others, or even one other infected area?

There must be hearty medical cooperation between the physician and the dentist in order to decide, in any individual patient, what teeth shall be preserved, what teeth must be removed, and how best to treat infected gums; also what part a diseased condition of the patient plays in the mouth condition.

M. I. Schamberg,[2] a noted New York dental surgeon, says:

> Crown and bridge work, as well as all work upon pulpless teeth, should be conducted by men who would specialize in that work, and who would, through the medium of x-ray, satisfy themselves that they are not putting a beautiful super-

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[1] King, J. J.: Further Observations on the Connellan-King Diplococcus Throat Infections, The Journal A. M. A., Jan. 13, 1917, p. 91.

[2] Schamberg, M. I.: Journal of the Allied Dental Societies, December, 1915.

structure on a weak foundation. Roentgenograms should be taken from time to time after the insertion of such pieces, to determine the state of health or disease of the hidden parts. Patients' mouths should be kept free from infection at all costs, even though it should mean the removal of every tooth in the head. If it can be done without sacrifice of the teeth, so much the better, but a toothless mouth is to be preferred to one containing a single focus that menaces the health of the patient.

It should also be urged that however well a patient is, these germs of infection, wherever they may be, are ready to do him some injury whenever an acute infection attacks him, or when his own systemic strength is in any way reduced. They are all waiting an opportunity, and how can we excuse a physician for omitting to study his patient's mouth? How can we excuse the dentist who waits until tomorrow, or next month, or six months hence before he removes a source of infection which he has recognized? Or how can we excuse a dentist for carelessly constructing bridges or crowns in the mouth of a young patient, knowing the danger from infection in the years to come? In other words, have we the right to crown to the gums, even if they are wonderfully well fitted? Have we the right to construct permanent bridges, when an aseptic bridge or a removable plate is more sanitary?

IODIN INJURIOUS

I do not propose to discuss the treatment of pyorrhea alveolaris, but let me emphasize the fact that dentists use iodin too freely on the gums. A little pain here, or a little infection there, and the gum is injured by repeated applications of iodin. We know the value of iodin as a counterirritant or as a germ destroyer. We also know that it destroys the vitality of tissues, and many a gum has been burned and blistered, and inexcusably made a region for more infection. We should remember that there are always germs in the mouth, many of them harmless, but also many ready to attack a broken mucous membrane or ready to be absorbed into the system through such a lesion. Therefore, care should be exercised not to injure the mucous membrane of the mouth or gums, especially when an infection is being treated.

I find that infected teeth and tonsils are frequent causes of thyroid disturbance, causing both hypersecretion and hyposecretion, and no medicinal treatment will effect a cure until the foci of infection have been removed. The absorbed toxins produced by the germs of infection and by the local suppuration often act peculiarly on the thyroid gland. The thyroid may be considerably enlarged, yet may give absolutely no symptoms of increased secretion and need not be cystic. Something irritates the gland, and then something else inhibits the result of its increased activity. This is shown by the surgical removal of the source of the mouth infection, and sometimes marked symptoms of hypersecretion immediately occur. I have seen three such instances. In one case the gland became greatly enlarged after the operation, exophthalmos occurred, and a tachycardia of from 140 to 160 developed. Before the operation, absolutely no thyroid symptoms were present, except a slightly enlarged gland.

Not only the thyroid, but many other internal secreting glands of the body, are disturbed by the absorption of germs or toxins from the mouth. The suprarenals are, probably, especially acted on, as we have great changes in blood pressure in these patients. Many a patient with a very high blood pressure shows no arterial and no kidney excuse, no intestinal toxemic excuse, and this high pressure persists, even when the diet is made rigidly vegetarian. Consequently, it is self-evident that there is internal secretion disturbance. Whether the suprarenals hypersecrete, or the thyroid, and one or two other glands perhaps undersecrete, it is difficult to determine, but that these glands are disturbed there is no question. Also there are many instances of very low blood pressure in these patients, and again we may not know whether the toxins depress the nervous system, or the vasomotor center; or whether they stimulate the thyroid to increased secretion of vasodilator substance, or inhibit the suprarenals as to their vasopressor substance.

Not infrequently patients with glycosuria have mouth infection. These cases are likely to be without typical diabetic symptoms, namely, without polyuria, and without thirst. In these cases there may be pituitary disturbance, or suprarenal disturbance, or pancreatic disturbance, or the glycosuria may be caused by the absorption of something that interferes with the liver or with muscle metabolism.

We must recognize that germs may be present in and around gums, allowing dangerous absorption of their toxins, without any local manifestations of pus. This is true of some germs that cause arthritis.

Again, there can be no question that the constant absorption of irritants or poisons from the mouth can cause irritation of the kidneys and subsequent chronic nephritis, even if focal infection of the kidneys is not thus caused, and many a case of autogenous infection or purulent infection of the kidney occurs without any apparent tangible excuse. Probably these obscure cases occur mostly from concealed infections of the mouth, tonsils or one of the sinuses adjacent to the nose.

We do not know that this continued absorption of concealed irritants in the mouth for months and years may not cause arteriosclerosis. All sorts of gastro-intestinal disturbances, such as hyperacidity and ulcer of the stomach, can be caused by such mouth infections. And let us remember that cancer of the stomach seems to be on the increase. Recently I saw in consultation a patient who made a profound impression on me. He was a man but little over 40, who had, before it was discovered, far advanced, inoperable cancer of the stomach, and besides several bridges, there was hardly a tooth in his mouth that was not crowned. He had been fussing with his teeth and visiting dentists for fifteen years or more.

Statistics prove that cardiovascular-renal disease is increasing enormously, and we know that, in the last twenty-five years, crowns, bridges and pivoted teeth have also increased in a most extraordinary fashion. One has only to look into the mouth of every patient who enters one's office, of every patient who enters the hospital or the dispensary, to see how hard the dentists are working.

One of the saddest things that can happen to a person is infection of the blood with the *Streptococcus viridans*. This germ probably always gains an entrance through the mouth, and if we should cultivate the pus and secretions from the patients who have diseased mouths, we should probably be astonished to find the number of times the *Streptococcus viridans* was present. In the vast majority of cases the only hope for the patient with *Streptococcus viridans* is to eradicate it from the mouth before it infects his blood and causes malignant endocarditis.

The relation of mouth germs to arthritis deformans seems proved, hence eradication of the source of infection before the joints are affected should be the preventive treatment of today. To allow infection in the mouth to persist until this painful and crippling disease develops is inexcusable.

For nearly two years now, at a public tuberculosis institution of which I am chairman of the medical board, we have examined the mouths, corrected the teeth and removed sources of infection of every patient who entered the institution, and owing to this preventive treatment we have had less tonsillitis, fewer sore throats, less indigestion, and less influenza and colds than we had before we began these mouth investigations.

I think that both dentists and physicians have been very slow in discovering the harm done to patients by crowns and bridges, by leaving infected teeth in place, and by improperly filled teeth. Physicians do not pay proper attention to, and many times do not even look into, the mouths of their patients. I look back with chagrin and shame as I think of the probable cause of the chronic invalidism of some of my patients of years ago. But with this admission of neglect in the past, I deplore the present necessity of being compelled to fight with both the patient and his or her dentist for the removal of infected foci in the mouth. The dentist frequently will not cooperate. He naturally dislikes to remove his own fine handiwork. Hence, I repeat, when a bad tooth comes out, or a dirty crown comes off, let the patient, or, if he is anesthetized, his nearest relative, smell of it. This is an educational propaganda.

CONCLUSIONS

1. Most unexpected tolerance to pyorrhea alveolaris and to tooth infection is found.
2. Chronic invalidism may be caused by mouth infections.
3. The blood pressure may be raised or lowered by mouth infections.
4. The thyroid gland is frequently enlarged, and may hypersecrete or hyposecrete, in these infections.
5. Serious disturbances of the blood, heart, kidneys, stomach, intestines and joints are frequent from mouth infections.
6. Glycosuria can be, and perhaps true diabetes mellitus may be, caused by mouth infections.
7. Serious distant focal infections may occur from mouth infection.
8. Serious brain and nerve disturbances, as well as neuritis, may occur from mouth infection.
9. Ulcer of the stomach, pyelitis, appendicitis and chronic colitis may be caused by pyorrhea alveolaris and mouth infection.
10. Pneumonia, especially that which follows influenza, may frequently be caused by pneumococci long carried in the patient's mouth.
11. No treatment of these conditions will be of any avail until the mouth is made clean.
12. Stock or autogenous vaccines are not very promising as to their therapeutic value, but in obstinate cases they should be tried. Therefore, it is generally well to grow a culture from the infection in the mouths of these patients, that autogenous vaccines may be made and used, if desired.
13. One should be very careful not to promise a cure of a distant condition, although that condition was caused by the mouth infection. However, many brilliant cures are caused by surgical eradication of infected areas. The patient should always be told that the surgical removal of the infected area in the mouth does not remove the germ localized in distant parts of the body, nor does it immediately cure an inflammation caused by these germs in a distant part, nor will it restore degenerated tissue, but it will remove the primary source of infection.
14. It should be urged that any fresh lesion of the mucous membranes of the mouth is a source of danger, much as is a lesion of the skin. The efficiency of the integument in warding off disease germs has long been recognized. It should be recognized that fresh cuts, abrasions, and blistering of the mucous membrane of the mouth with iodin, or other strong escharotics, offer the opportunity for the absorption of germs that may be freshly received into the mouth, and more especially of germs already in the mouth.

MIGRAINE AND CHRONIC INTESTINAL STASIS

THEIR RELATIONSHIP AND TREATMENT

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By migraine is meant a condition characterized by severe attacks of headache that occur at varying intervals, with periods of freedom between the attacks. The headache is usually followed by vomiting, either of plain gastric fluids or contents, or of bile, "bilious vomiting." After vomiting, the patient usually feels better, the attack gradually subsides, and there is an interval of freedom from the trouble for a month or two, or it may be for only a week.

The term "intestinal stasis" was first applied by Lane to a condition in which there is a delay in the onward movement of the intestinal contents, accompanied by symptoms of a neurotic type. Formerly, instead of intestinal stasis we spoke of habitual constipation. In constipation we find occasionally a great number of nervous symptoms — dizziness, lack of concentration of the mind, insomnia, etc. This combination of nervous symptoms and delay in the onward movement of the intestinal contents and action of the liver is considered by Lane as "intestinal stasis"; by others, the same picture is designated as "constipation with nervous phenomena."

SYMPTOMS

In migraine it is characteristic that the headache comes on suddenly, in the midst of perfect health, although there may be a premonitory stage of short duration. Sometimes the headache is followed by a defect of vision; some persons have a glimmering light in one eye, or they cannot see well with one eye; the headache is usually in one part of the head. That is why it is called migraine, from the Greek hemicrania (on one side of the head). The headache is usually quite severe, so that the patient cannot work and may have to go to bed, and with it there are disturbances in the upper part of the abdomen, followed by nausea and vomiting, and if there is nothing in the stomach then ultimately bile comes up. After vomiting and purging, the patient feels relieved, and there may be a period of freedom for quite a while.

Patients with migraine may be in good condition and apparently perfectly well; or they may belong to a group which suffers from enteroptosis and weakness, and are thin, anemic individuals. They do not feel well between the attacks, they cannot work much, their appetite is not good, and they are constipated; but these complaints are of minor degree and do not incapacitate them. Among the abnormal conditions may be some disturbances of the vision, or disturbances of the abdomen or of the genito-urinary organs.

In chronic intestinal stasis or simple constipation with nervous phenomena, the bowels do not move well without resort to some aid. Besides the constipation, the patients also complain of a variety of symptoms, sleeplessness, headache, etc. The headaches are not severe like those of migraine, but are mild and come on almost daily, particularly in the morning. Then there may be slight dizziness, and the patient cannot concentrate his mind and cannot do the same amount of work as formerly. His appetite is poor; sometimes there is nausea, and sometimes there is a fear of going out alone or of going to church. These nervous phenomena may be exaggerated; sometimes the constipation is associated with melancholia. That is not an infrequent combination. Constipation exists also in a high degree in the insane.

In regard to the connection of these conditions, some physicians say that constipation is at the root of these troubles, causing even insanity. I myself do not believe this, but rather think that commonly the reverse is true, namely, that persons who are nervously upset and are insane have their constipation increased by their nervous condition. I once saw an insane patient with an immense very hard tumor in his abdomen that could not be differentiated from a large neoplasm. When it was learned that the bowels had not moved for a week or two, it was easy to make the diagnosis that it was a fecal mass. He was given a strong cathartic, the bowel was washed out for a number of days, and the tumor disappeared; but the patient's insanity was not cured. Although the constipation was relieved, the insanity persisted for a whole year, when the mental symptoms cleared up.

ETIOLOGY AND TREATMENT

French writers have given us the theory of autointoxication. Bouchard was the first to advance the theory that poisons form in the body which give rise to these disturbances. Any organ which is at work creates waste products which are, so to say, deleterious to the system, provided they stay there. Usually the system eliminates them. If one does manual work, the muscles use up some of their material and produce also waste products. Naturally, these waste products are removed, being eliminated during the period of rest, so that no disturbances originate. It is the same way with all the organs of the body. In the brain, for instance, reading or writing creates waste products, just as in any machinery; there is a by-product that has to be eliminated. Our organs are so arranged that the body normally is easily rid of these waste products, and no symptoms arise.

If we go a step farther we can see that if the required period of rest is not given, if the work is kept up too long, the waste products accumulate in a greater degree, and they are not eliminated in a complete manner. For instance, if a person can work six or eight hours every day and his organism is so arranged that he can rest in nine or ten hours, and he then works for twelve hours a day and does not get the required rest period, the system does not get the needed rest, and disturbances arise.

These disturbances may be considered as the defensive mechanism of the organism. To apply this theory to migraine: If there is a mental strain going on in some way, the patient doing too much work, reading or dancing, or taking part in too many social happenings and not sleeping or resting enough, the brain does not get sufficient rest and does not have time to regain its normal condition. Some waste products accumulate, and every day there is an increase in their amount, so that ultimately there is a catastrophe. The body tries to create something that will compel the organism to rearrange matters, and there is a spasm of the blood vessels on one side of the brain which makes itself felt as a hemicrania. The patient has a headache due to that spasm and has to lie down and rest more; during this time the restoration of function of the brain is completed in a normal way, and elimination takes place. The headache is then relieved; a relaxation of the blood vessels takes place and reestablishment of equilibrium ensues.

Elimination can be helped by emptying the bowel. The eliminative organs are the kidneys, skin, lungs, liver and digestive tract. The waste products are first taken up in the blood. How does the brain, for instance, get rid of the accumulated waste that must first be taken up by the blood? The veins do their share first. Part of that blood goes to the liver through the arteria hepatica. I do not speak here of the portal vein. The latter lies there as the barrier to prevent anything from passing through into the blood which comes directly from the digestive tract. But outside of that the other blood — only a part — goes to the liver. That brings something for the liver to work on; but the digestive tract has also the power to eliminate. Now, if the patient takes a cathartic or vomits, a part of the accumulated waste products is eliminated. The gastric juice is not only a secretion but also an excretion; it is excreted through the stomach. Sometimes urea can be excreted through the stomach, and still more through the liver. The bile brings down the excretory substances of the liver and empties them into the intestinal tract. If a patient has a migraine and we give him calomel, he has a greater flow of bile and the elimination is increased, and vomiting and purging clear out the system.

In the autointoxication theory in intestinal stasis, it is quite different. Fecal matter contains decomposed material and innumerable bacteria. The idea that poisonous substances reach the organism from this source is at first thought plausible. But normally the digestive tract (including the colon) does not take up any poisonous material. The mechanism of the system is so arranged that its work shall be kept up, and the colon is so constructed that the fecal matter can be discharged without much difficulty. Many physicians are imbued with the idea that if the intestinal contents remain too long in the system they will give out to the system poisonous substances which create all the symptoms before mentioned, and that we have to deal with an intestinal autointoxication.

If this theory can be worked out without awakening too much fear in the mind of the patient, it will not do any harm; but if it is exaggerated, great harm may be done. This point must be emphasized, for it is of importance. Lane said that if there is some delay in the motion of the contents of the bowel — and this is especially true in cases of enteroptosis when there is a prolapse of the colon and an irregularity in the position of the colon, which creates an autointoxication — this is the cause of the troubles associated with constipation, as sleeplessness and headaches, and also of many other ailments, such as chronic rheumatism and gout.

This theory has been overestimated, and has taken such root in the minds of some physicians that if they see a patient who is constipated they think he must be told of it. "Why, you cannot live that way, with poisoning going on in your system all the time; if that keeps up, all will come to an end." The patient goes home and worries, and doesn't know what to do. He tries to do exactly what the physician tells him. He eats no proteins, but does not feel much better. He comes back to the physician, who says: "Your trouble is in the colon; the colon is not exactly right. It is too long. Instead of going in a more or less circular way, it forms angulations and drops down, and that is wrong. There is a delay there, and that is where the trouble lies." If the patient does not get better within two or three weeks of treatment, operation is suggested for the purpose of shortening the colon, cutting out part, or perhaps the whole of it, performing an ileosigmoidostomy or a colectomy.

Were this theory really correct and could we prove it, we might at least try such a procedure; but in reality such patients feel much worse after operation. A great many are made worse, and some have died as a result of it. In order to demonstrate that we really have to do with an autointoxication, we ought to be able to produce the poison by experiment and then to inject it into animals and show that that poison causes these symptoms, not in one or two instances, but in every instance. If that could be proved, we might speak of it; but it has not been proved, and much harm has been done by teaching it, in making people afraid of themselves, making them afraid to eat and afraid of their digestive tracts, especially of the large bowel which, according to their minds, is a place of poisoning.

It is just the reverse. The colon is our best friend. Instead of being a place of poisoning it is a place in which things can be kept without harm and later on eliminated. It serves a very useful purpose. It can take good care of the excrement and can work it up better. If we lose the colon, we are much worse off than with it. I speak from experience, for such persons come to me almost every day worrying about their large bowel.

This is all wrong. Unless there is some organic disease in the bowel which gives rise to ulceration, for instance, in such a way that it is exposed to the absorption of fecal matter — and such instances are very rare — the mere presence of fecal matter will do no harm, for so long as the mucous membranes are intact, no matter what the shape or position of the colon — big or little, up or down — no surgical intervention will be required. The latter will be reserved for organic diseases (strictures, or partial stenosis by bands, etc.).

In regard to the connection between the nervous phenomena and constipation: In a great many cases, the nervous phenomena do not originate from the constipation. This has been proved by Dunin of Russian Poland. Two important points can be brought out to demonstrate this. Constipation can be established for a number of days by giving a patient opium, and yet he will be perfectly well, showing that the fecal matter does him no harm. If a patient with these nervous phenomena — sleeplessness, distress, etc. — is given a nerve remedy, say 15 grains of bromid, a movement of the bowels will at times take place without a cathartic. This will not be true in all instances, but will in a great many, showing that the primary factor in the condition is the nervous state of which the constipation is the consequence.

It is important to know that fear and constant anxiety about having a movement is bad for the patient; it makes him worse. The more he is frightened and made anxious about having the movement, the worse is the constipation; the fear and anxiety exert an inhibitory influence on the peristalsis.

TREATMENT

In cases of migraine, we first have to look into the condition of the system and find out any existing faults, such as astigmatism, which should be corrected by proper glasses; enteroptosis, by giving the patient a bandage; chlorosis, anemia, by building up the system and getting the patient into a normal state. For, if the organism is below par, anomalies will develop much more quickly, and the migraine will come on more readily than if the body is in good condition. The first thing to be done is to try to adjust any existing anomalies of the body.

During the attack, the desired rest must be secured for the patient; if possible, in bed. No nourishment should be taken, or only very little liquid food; and a mild aperient or a saline enema should be given. If these measures are not sufficient, citrated caffein, 2 grains, in conjunction with pyramidon, 5 grains, may be administered twice daily. In rare instances, codein or morphin may be required. All of these remedies act well and should be given as needed. Calomel is good and can be administered when indicated, and injections may be given to wash out the bowel. In a day or two the migraine is over and the patient returns to normal, and then we decide about other measures to adopt to prevent, if possible, the return of the migraine. If we succeed in eliminating all the causative factors, the migraine will not reappear; but if we cannot do that we can at least cause the attacks to be milder and less frequent.

In habitual constipation, or intestinal stasis with these nervous phenomena, it is of first importance to reassure the patient by telling him that in case he is constipated no harm has been done to the system. We must take away the fear of poisoning. The patient should be told to eat, but not to overwork, and his bowels will move all *right*; also to go to the toilet every day at the same hour, in order to reestablish the habit that has been lost.

In many patients constipation is due to a one-sided diet, and they have to be taught a proper diet. They should be urged to eat plenty of bread and vegetables and fruit, and plenty of salads. The more indigestible food these patients take, the better. It increases the activity of the digestion and augments the peristalsis. If they are given food that will digest readily there is too little work for the bowel to do. Many patients take too little water. These should be encouraged to drink more water, since drinking water between meals increases the action of the bowels.

If all this has been done and it is not enough, the question arises whether we are justified in giving the patient cathartics. Mild aperients are rational. If the patient does not do well enough with dietetic measures, we must resort to other means. There is no harm in them; also sedatives, as already mentioned, should be given. As mild cathartics, I would consider cascara sagrada or tincture of rhubarb, 15 grains twice a day; also small amounts of licorice powder. These remedies can also be employed in combination with agar-agar. Agar alone is sometimes sufficient. It is a substance which takes up fluid and does not give it up readily, but retains some of it. Constipation is sometimes due to the stool being too dry. The water has been taken away by the digestive tract, the excrement is too dry, and the peristalsis cannot push it along easily. Therefore, if agar is given, which is not digested in passing through the tract, it takes up fluid and lubricates the fecal matter and gives it a more moist character and appearance. It is helpful to the bowel and eases the movements, so that it can be given in large quantities. But often this is not enough, and the combination of a mild cathartic remedy with it is beneficial. The idea of using the cathartic remedy in this way is that instead of being absorbed in the stomach it is carried along farther in the tract. The agar has the advantage that if the remedy is incorporated with it, the remedy does not act too quickly but emerges slowly along the entire digestive tract by the process of osmosis. That is why these mild cathartic remedies incorporated with the agar act so much better than either alone. In this way one can give phenolphthalein-agar or rhubarb-agar with great benefit. The principle with all these remedies is that instead of increasing the quantity the patient should be told to take a little less gradually from day to day or week to week, so that ultimately he may not need to take anything; but if the patient does not succeed in this, there is no harm in taking a little once in a while.

No one should be operated on for these conditions unless there is some organic lesion present. If there is a stricture of the colon there are sometimes fever and vomiting, and an operation may be required; but not with these symptoms of plain, habitual constipation. In such cases an operation is not justified. I well know that my remarks conflict with the views of others. These are my views, and I assure my colleagues that my experience leads me to state that they can relieve without operation their patients suffering from constipation.

In treating patients with habitual constipation, saline enemas may be used, and olive oil injections may be given. The latter is especially good in spastic constipation, when the fecal matter is hard and dry. An injection of from 5 to 7 ounces of olive oil may be given, and left in the bowel over night. This treatment may be continued for two or three weeks every night, and then it may be given every other night for a few weeks. That is apt to cure the patient. Klemperer has given water instead of oil with good results, but the oil is better. It is not necessary to give these injections too high up. It is well to have the patient lie first on the left side, and during the night it will flow in. The olive oil should be used at blood temperature.

All these measures are more or less reassuring to the patient, and act subjectively as well as directly.

Liquid petrolatum is also good, but in many cases in which it does not act, agar gives a satisfactory result.

20 East Sixty-Third Street.

THE INDUSTRIAL DISPENSARY IN PREVENTIVE MEDICINE *

S. M. McCURDY, M.D.
YOUNGSTOWN, OHIO

Civilization must progress by means of ideas and ideals, and as a protest against any existing order of affairs an idea must take root in some one's mind. For the acceptance of an idea, if it is to be useful, the public must realize its necessity, since necessity is the motive power of all progress. We have repeatedly listened to statistics indicating the cost of waste produced by preventable illness, but now, as never before, we realize the importance this question has for our nation. Man power conserved now, both in civilian and military life, assumes such an important place in our preparedness schemes that all agencies must be employed for the conservation and protection of our people.

We have never been satisfied with our preventive medical work, and never can we be until we enlist new forces for the cause. We have placed our faith largely in police power, and have educated our people in spite of themselves to mass for community protection. We have never, through our spasmodic periods of medical education, enlisted the cooperation of the individual for his own protection. Witness the fact that, in spite of police power, our city streets are covered with salvia, and remember that it is so because individuals have not recognized the danger. Remember the work accomplished by our campaign against tuberculosis, and do not forget that in most communities many do not receive an early diagnosis because of (1) inability to purchase the services of a good physician, and (2) ignorance of the necessity for medical care.

How many cities or states can boast of having set aside beds enough to care for their tuberculous patients? How many can show me that they do not harbor tenements that are breeding places for tuberculosis? How many boards of health will tell you that all the physicians are making prompt and accurate returns of their preventable cases? Individuals must be medically educated. They must develop a medical conscience before greater results can be obtained. We have discussed the increase in heart and kidney lesions, and pointed out their early mortality, which we say represents the wear and tear of life. In any given industry do we know what a physiologic day's work is or have we arrived at the length and amount of a turn at labor by noting what the average can stand for a given space of time.

Within a very few years we have seen our preventive work take a turn for the better. In regard to children, we have recognized the fact that education is worth little without health. We know that many parents either through ignorance or wilfulness send children to school who are suffering from contagious diseases that are dangerous to others; hence the rise of school inspection, with all its benefits. We learned soon that many physical handicaps could be removed and before long parents were willing to aid in the medical school work. We presently found that some children must be placed in a selective school environment, lest their deficient mentality should ruin others. We taught our educators that children could have

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* Read before the Section on Preventive Medicine and Public Health at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

incipient tuberculosis and still be educated in open air rooms without danger.

Up to within a few years ago we assumed that the man grown child, brought up without school inspection, was able to care for himself. Today we know that he has not the medical knowledge, that he is careless about his health, and that his employer often asks him to work in a place that we know is detrimental to well-being. Some industrial organizations have recognized the economic loss due to preventable illness, and are meeting the conditions with industrial dispensaries. No movement of late years holds out so much promise to preventive medicine as do these diagnostic clinics and clearing stations. Here is joined together the sum total of the health of workers and the world's production. Here is introduced into industry a spirit of humanness that is beneficial to employer and employee. Here we have a compulsory medical education for those who need it most. In this movement we shall realize the actual national asset that we must have in order to insure a country prosperous because of healthy human workers.

Industrial dispensaries demand for their success two fundamental principles:

1. Men must not have preventable illness, whether due to their own or to their employer's neglect.
2. If sick, they must be returned to work in the shortest possible time with a minimum of permanent impairment.

These diagnostic clinics have grown by leaps and bounds. Some are doing most excellent work, while others are more or less in the formative stages. We should unite on a desired program, and then from all parts of the country drive home to employer and employee this great entering wedge which will open up the way to a better knowledge of preventive medicine. Business men will recognize the necessity for medical supervision, for it promotes greater efficiency and makes for economy. They will eliminate the cause within their gates as soon as medical men show them the way. The individual and society must recognize the moral obligations resting on them and do away with those causes of illness for which they are to blame. Industry will assume the cost of dispensaries until the people can be educated to bear their own share of the burden.

Dispensaries for accidents are already a recognized obligation on the part of industry, and dispensaries for sickness soon will be introduced. The best work in this field can be accomplished by the recognition of a few fixed principles and a definite program:

1. All men working in the various industries should be physically examined.
2. All new applicants for work should be physically examined.
3. All employees should be reexamined at stated intervals, and their previous condition checked. A system should be introduced by which all men leaving work because of illness, or returning to work following illness, are compelled to go through the dispensary.
4. Educational work should be carried on among the men by means of talks, pamphlets and moving pictures.
5. The dispensary should be so equipped that it can treat minor illnesses and act as a diagnostic clearing house.
6. To insure adequate medical attention a system of insurance should be installed, the expense to be borne by employer and employee.
7. Visiting nurses should follow the patient to the home, aid in nursing care and give health and household education.
8. Later, industry should employ its own physicians to treat illness in the home, exactly as it now does in accident cases.
9. Dental dispensaries should be organized as rapidly as possible.
10. Defects in old employees must be remedied free of charge whenever possible.

Under such an organization one will insure:

1. Adequate medical attention.
2. Minimum amount of permanent impairment.
3. Diminished loss of time owing to absence from work.
4. Diminished waste due to loss in production. Lessened numbers of green men hired and increased wages to the individual worker.
5. Happier people and pleasanter industries.
6. Collection of data on the hazards of a given industry at a point most useful.
7. A real work and contribution to the cause of preventive medicine.

That such an organization is possible and can produce such results has been proved by many industries. Several firms have, on the one hand, constantly reduced tuberculosis, as their work progressed, and, on the other hand, they can show men at work in whom the disease has been arrested.

There are firms that can positively show a decreased labor turnover, and the acknowledged cause is their dispensary. Many firms have long lists of defects remedied, some pertaining to the eye, some to general diseases, and some to deformities acquired or inherited. Any number of industrial physicians can tell of the benefits of the industrial diagnostic dispensary as shown by less time off duty and by the awakening of the community to health needs.

But our work is not limited to treating sickness after it is acquired. We supervise all phases of sanitation within the plant. Water is constantly tested to see that it is proper for drinking. Water closets are arranged so that they may be sanitary. Washing facilities are installed. Work places that are insanitary whether owing to poor heating facilities or to excess of dust, poor light, poisonous gases, etc., are improved by mechanical means. Problems pertaining to hours of work and the relation of fatigue to health are being solved and will eventually be placed on a scientific basis. Rest and nutrition become a branch of the industrial physician's work, as well as all matters pertaining to the well-being of an employee.

Let us be honest pessimists and look facts in the face. Under the present system of the practice of medicine, two conditions occur. A large majority of our workers are not receiving adequate medical attention, with the natural result that there are many unnecesary days' absence from work and many permanent deformities. The science of preventive medicine has not progressed as far as is possible with industry enlisted in the cause. While I am a firm believer in the principle of health insurance and participation therein by the state, I know that the time is not yet opportune. We must go ahead with our industrial dispensaries, and they will show us the way to our dream, national compulsory health insurance.

243 Norwood Avenue.

ABSTRACT OF DISCUSSION

Dr. George M. Kober, Washington, D. C.: It has been well said that the highest aim of scientific medicine is the eradication of preventable diseases, and that the health of the people is the highest law. Now, if these are axioms, the question arises, What shall be done to secure the most beneficent results? It is evident that the solution of the problem can scarcely be left to the practitioner alone. The man who has equipped himself primarily for the cure of disease can hardly be expected to give his utmost effort to the prevention of disease. I believe that the protection of industrial workers in all its broad aspects, including the industrial dispensary, is a public health function and clearly a duty of the state, and I am glad that some of our health departments—notably that of New York City—have assumed this function.

To get the best results it is necessary that there should be a corps of medical workers in the employ of the state whose primary function is the prevention of disease; a body composed of men who are not only only well trained in every department of medicine, but more especially in preventive medicine. Such men will not only render valuable service in the prevention of disease and accidents, but can be relied on to restore as speedily as possible the earning capacity of the wage earner. All this work should be done at the expense of the state or community. It will be found that large sums of money will be saved in preventive efforts. Moreover, it should be remembered that in the ultimate analysis the taxpayer pays the bills incurred as a result of sickness, accident and permanent disabilities in the majority of wage earners. The sooner we work to that one end the better it will be for humanity.

Those men should be full-time medical officers and should give evidence of proficiency, not only on admission, but should be subjected, every five years, to reexaminations to determine their fitness. Naturally, such a corps ought to be absolutely free from politics, and quite as independent as the Medical Corps of the Army, Navy and Public Health Service. When this is accomplished I believe we can look forward to really beneficent effects, and there is certainly hope in that direction. I realize that in spite of certain discouragements there is a growing interest in preventive medicine, as evidenced by the ever-increasing attendance in this section.

THE RÔLE OF THE TRANSVERSE MESOCOLON FOLLOWING GASTRO-ENTEROSTOMY

C. A. ROEDER, M.D.
OMAHA

A gastro-enterostomy is no exception to the rule that it is impossible to short-circuit completely any portion of the gastro-intestinal tract unless a complete obstruction is present. However, if the operation is properly performed the irritating gastric juices are drained off as fast as secreted, affording Nature an opportunity to heal the ulcer. She ejects the food when ready through the most convenient opening. It is now definitely established that we obtain equally as good results whether or not the pylorus or duodenum is blocked, and that we obtain better results for gastric ulcer when the ulcer is destroyed by cautery or excision, the former method being preferred. The good results are attributed by many to the presence of the alkaline bile and pancreatic juices in the stomach neutralizing the acid. This makes it quite difficult to explain why a duodenal ulcer becomes chronic when we know that from its beginning it is almost constantly bathed with these alkaline fluids. We have no proof that practically all duodenal ulcers do not become chronic. Not infrequently, an entero-anastomosis is performed below a gastro-enterostomy, and with this procedure, as in the Roux Y operation, none of the bile and pancreatic juice is carried to the stomach, yet our results are equally as good as when a simple gastro-enterostomy is performed which allows free interchange of fluids.

Directly opposed to the therapeutic theory, many consider the presence of these fluids in the stomach as the cause of our poor results of varying degree, particularly vomiting. Various experiments and case reports, however, have settled this controversy, particularly the three cases reported by Collinson and Braithwaite,[1] in which the duodenums were resected for disease with a closure of the proximal and distal ends, forcing all the duodenal contents back into the stomach and which left the latter by way of an anastomosis. With all plastics on the pylorus and duodenum and simple gastro-enterostomies there is a free interchange of fluids; while with the Polya operation there is a common vesicle formed by the jejunum and stomach. Gerster feeds bile by tube from a wasting biliary fistula with good results.

There is no definite proof that the presence of these fluids in the stomach has any beneficial or harmful effect on gastric and duodenal ulcer. The duodenal contents evidently play a negative rôle, and nearly all patients explored properly for persistent vomiting or indefinite distress following gastro-enterostomy have shown a deficient drainage of the stomach, duodenum or afferent jejunum if a secondary ulcer is not present. Our results correspond to the perfection of the mechanical features of the operation. With gastric ulcer it is assumed that the ulcer is destroyed by cautery or knife.

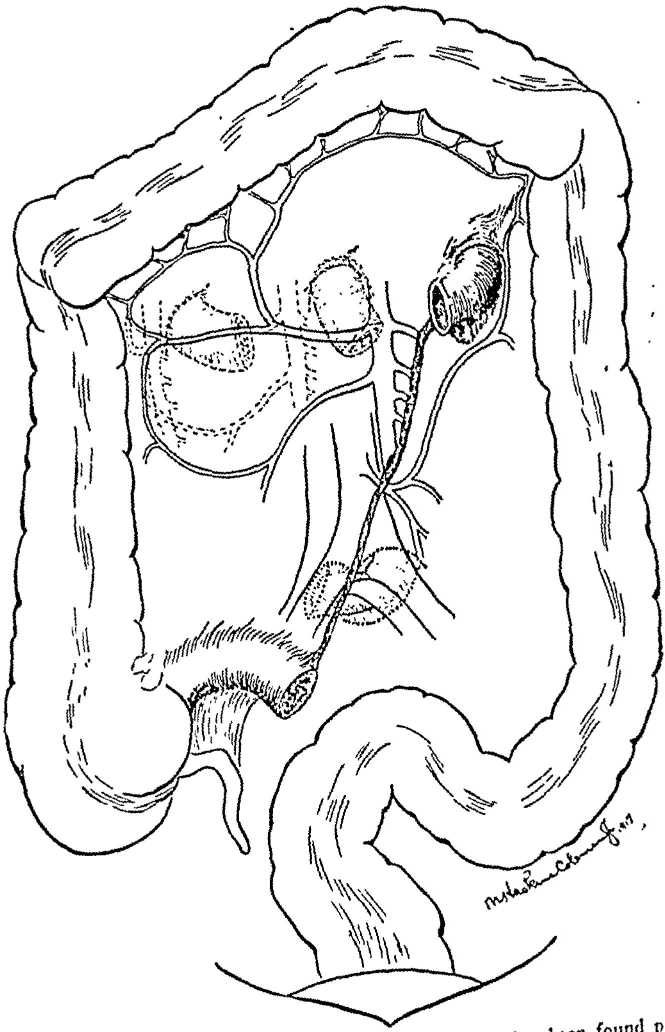

Fig. 1.—The various points at which the jejunum has been found projecting into the greater peritoneal cavity.

In performing a gastro-enterostomy we are joining two organs of opposite function. The stomach is a reservoir, the muscular action of which is activated by its secretion, emptying itself through a relatively high opening. The duodenum and first jejunum comprise a rapid transit duct as shown by fluoroscopic examination. In performing this operation it is essential that the stomach and duodenum are freely and constantly drained into the efferent jejunum by way of the anastomosis, and any interference at any point in the performance of this double rôle will bring on varying degrees of imperfect results. Following all gastro-enterostômies a small percentage of patients vomit for a short time, later going on to complete recovery. This no doubt is due to a moderate kink, gradually adjusting itself.

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[1] Collinson and Braithwaite: Brit. Jour. Surg., 1913-1914, 1, 665.

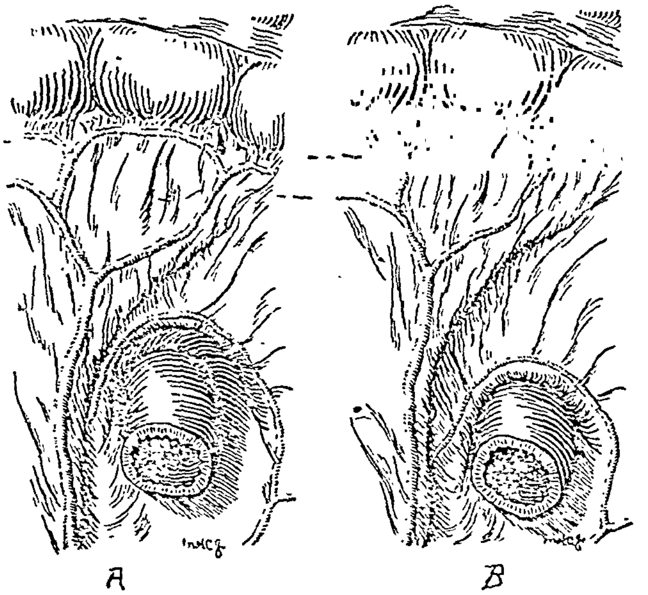

Fig. 2.—*A*, a space between the superior duodenojejunal fold and the flexure forming the superior duodenojejunal fossa; *B*, this fold attached to the bowel with no fossa present. The vessel along the edge should be noted.

The stomach enjoys considerable excursion and the anastomosis lies sharply above the only fixed point in the gastro-intestinal tract involved. Following the operation the stomach tends to assume its normal position, retracting upward, and if dilated at the time of the operation will generally contract afterward, further increasing this upward pull. With these three factors present, namely (1) excursion, (2) retraction and (3) contraction, it becomes necessary to note the point of origin of the flexure and the amount of its fixation.

The Mayos unite the mesocolon to the stomach just above the suture line in order to prevent an intraperitoneal hernia and to help form a funnel-shaped depression in the stomach for drainage. In addition, this attachment no doubt retards the active excursions in all directions, thus preventing angulations in the proximal jejunum. The portion of the stomach surrounding the anastomosis is held firmly enough to prevent an upward pull, which, if present, might kink the afferent jejunum beneath the edge of the mesocolon and at the anastomosis, as happened in Mumford's case.[2] This attached mesocolon acts as an anchor.

The Mayo method conforms to all the best mechanical principles which are so essential to the success of this operation. It unites the jejunum right to left as near the fixed point (flexure) as possible to the lowest point of the stomach, which is opposite the cardiac orifice. Occasionally, however, the jejunum comes through the mesocolon farther to the left than usual, and in such instances the jejunum is better united from left to right in order to prevent angulation in the proximal jejunum at the anastomosis and flexure. With the opening placed at the lowest point, the ever-present gastric juice is constantly and freely drained. This free drainage prevents the painful gastrospastic wave which has been shown by Carlson to be the cause of considerable distress. The stomach then loses its hyperperistaltic stimulant, and even lapses into a temporary atonic state, as demonstrated by Wilensky.[3] The Hartman method of connecting the jejunum to the pyloric portion of the stomach has not produced the results expected. The opening is placed in a sphincteric area which has a tendency to close it. It is also placed too high and too far to the right, which does not allow constant and free drainage. It has a greater tendency to angulate the afferent jejunum.

If the mesocolon were not present, and the duodenum and first jejunum were on a free mesentery, gastro-enterostomy would be much simpler. As it is, we have a portion of the bowel (the flexure) fixed to a varying degree to the posterior abdominal wall. This fixed point acts as a potential angle and also tends to keep the flexure at a lower level than the anastomosis.

ANATOMY

The usual origin of the jejunum is at the dorsal border of the mesocolon, opposite the left border of the second lumbar vertebra. This point may vary and may be any place between the hepatic[4] and the splenic flexure (author's case), and if farther to the left than usual it may indicate a left to right anastomosis. We must look on the duodenojejunal flexure as a *fixed*

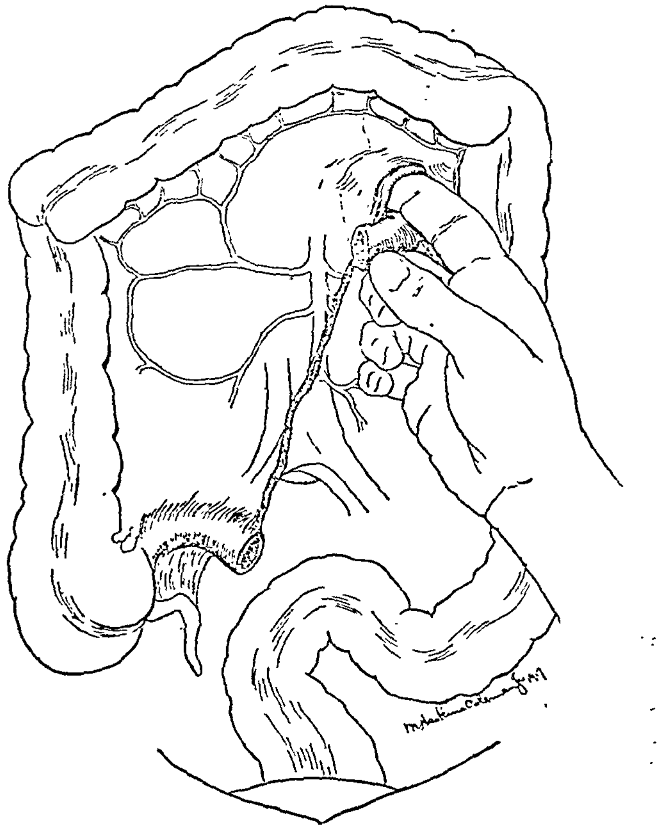

Fig. 3.—Finger inserted beneath the fold to determine the degree of constriction. Higher up the amount of fixation of the duodenum by the plica duodenojejunalis and the ligament of Treitz can be determined. It should be noted that the last two are not seen at operation.

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[2] Mumford: One Hundred Surgical Problems, Ed. 1, 1911, p. 22.

[3] Wilensky: Ann. Surg., June, 1917.

[4] Boyd: Brit. Med. Jour., Sept. 19, 1914.

point with an active duodenum above (Alvarez) and a free jejunum below. This flexure is held fast by three structures, two described by Crymble,[5] and the third, which is not constant, observed by myself. Crymble has shown from dissection that the ligament of Treitz and the supramesocolic portion of the plica duodenojejunalis extend from the anterior surface of the flexure to the posterior abdominal wall, thereby limiting markedly the mobility of this portion of the bowel. These structures lie above the mesocolon and are never seen at operation.

Another point of occasional obstruction I have observed is where the superior duodenojejunal fold is attached closely to the duodenojejunal flexure or just below it. When this fold, which is *not constant,* crosses the flexure with a space between it and the bowel, we have formed the superior duodenojejunal fossa; and when no space separates it from the bowel no fossa exists; and we may then have this fold, if sufficiently developed, limiting the excursion of the bowel, acting as a potential point of obstruction. This fold generally contains an artery adding to its tensile strength.

Occasionally, even without the presence of a gastroenterostomy, we find at operation or necropsy the duodenum markedly dilated. While I was assisting the late E. H. Beckman of Rochester, an occasion was offered to explore a patient for indefinite gastric complaint, and the only abnormality found was a greatly dilated duodenum, equaling the stomach in size, and extending beyond the superior mesenteric artery to the flexure.

RELATIONSHIP OF STRUCTURES AND VESSELS AROUND THE FLEXURE

1. Lesser sac peritoneum
2. Coronary artery
3. Splenic vessels
4. Body of pancreas
5. Inferior mesenteric vein

ANTERIOR

1. Superior mesenteric artery
2. Celiac axis

RIGHT FLEXURE LEFT

1. Inferior mesenteric vein

POSTERIOR

1. Left renal vein
2. Nerve cords semilunar ganglion.
3. Inferior phrenic arteries
4. Aorta

Many writers attribute the dilated duodenum previous to or following operations to the compression of tense superior mesenteric vessels passing over it. It is difficult to imagine much tension on these vessels when we recall that they are attached to "floating organs," the contents of which have usually been cleaned out. In addition, the patient is lying down or is in a semirecumbent position, with the abdomen supported by dressings. Careful exploration will find the dilatation usually extending beyond these vessels.

In dividing this superior duodenojejunal fold it is necessary that one should be familiar with the anatomy in this region.

REPORT OF CASES

CASE 1.—A woman, aged 43, was operated on elsewhere by an excellent surgeon for duodenal ulcer. One week following the operation, persistent vomiting of bile and fluids started, which lasted, in spite of various conservative measures such as lavage, etc., until a second operation was performed three months later. A most interesting point was a negative roentgen-ray examination. The bismuth meal flowed freely into the efferent jejunum through the anastomosis, and the stomach emptied in less than two hours. At the second operation I found a perfect appearing anastomosis. It was soft and pliable, admitting the tips of three fingers. The lumen of the jejunum was not used up in the sewing. The opening from the anastomotic ring into the afferent and efferent jejunum seemed ample, and there was no kink at the proximal and distal edge of the new opening. There was no spur formation by mucous membrane. The afferent jejunum, the portion extending from the anastomosis to the duodenojejunal flexure, was a short loop of 2½ inches, not dilated, and it emerged from the mesocolon opposite the left border of the vertebral column and was attached to the posterior wall of the stomach from right to left (Mayo). The situation was puzzling, to say the least, as I had expected to find an obstruction. Further exploration displayed to the right of the vertebral column a greatly dilated duodenum, three times normal, extending on past the superior mesenteric artery to the duodenojejunal flexure. No superior duodenojejunal fossa existed here, which, when present, allows considerable mobility to this portion of the intestine. Division of this fold between two ligatures, as it almost always contains a vessel, relieved the obstruction. With the finger the duodenum higher up was partially freed from its attachment to the posterior abdominal wall. The enlarged opening was carefully attached to the jejunum in order to prevent a possible retroperitoneal hernia. The patient recovered.

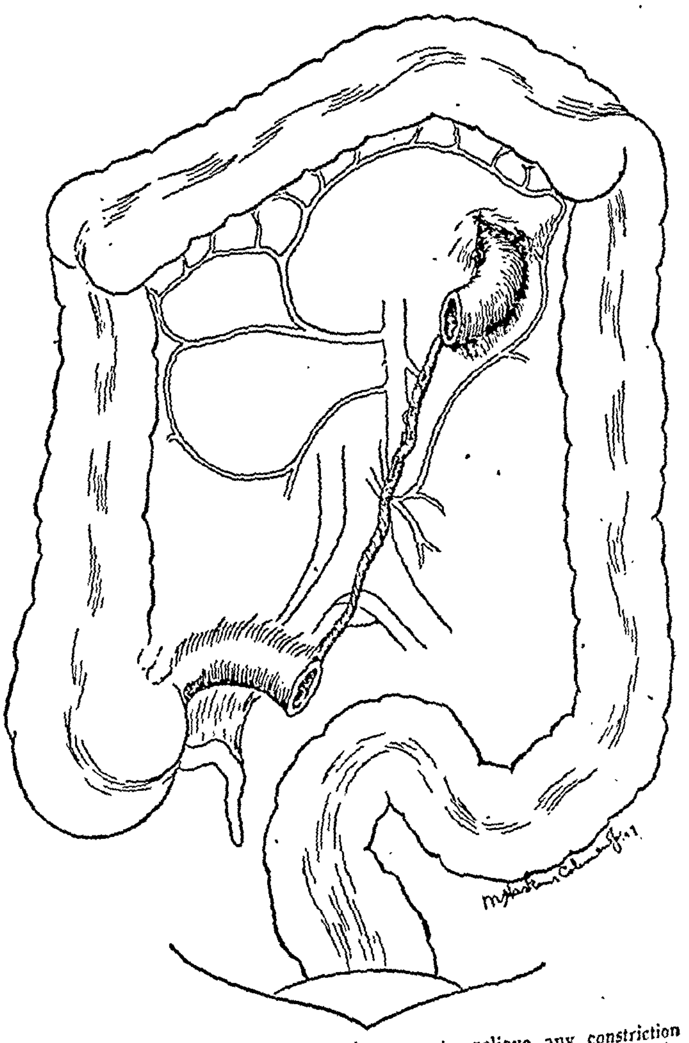

Fig. 4.—The fold cut between ligatures to relieve any constriction present. The manner of attaching the divided fold to the bowel in order to prevent a retroperitoneal hernia should be noted.

CASE 2.—On this patient, a man aged 56, I performed a gastrojejunostomy for duodenal ulcer three months previously. The roentgen ray in this case showed bismuth entering the efferent jejunum freely, as in the previous case. The emptying time of the stomach was not recorded. The jejunum in this case emerged from the mesocolon, just beneath the splenic flexure, so a left to right anastomosis was performed, and the jejunum was attached 1½ inches beyond the anastomosis, in order to prevent a kink, which was first suggested by Hadra in 1891. A fairly short loop resulted, preventing a sag in the jejunum. At the second operation, for persistent vomiting, the field of operation appeared normal. There were ample stomata at the anastomosis opening into the stomach, afferent and efferent jejunum, and no kinks or dilations were seen below the mesocolon. In this case the duodenum was tremendously dilated, being four times normal and most prominent to the right of the vertebral column. The dilatation extended up to the duodenojejunal flexure, which was moderately constricted by this crescent-shaped fold in the mesocolon, as was easily determined by the finger. In this case the jejunum had been drawn sharply to the right by its attachment to the stomach. The short loop proved to be too short, kinking a moderately fixed portion of the bowel, which contained a potential angulation. The finger was carefully inserted around the duodenojejunal flexure, gently dissecting it free, and this fold in the mesocolon was divided between ligatures. This patient died of peritonitis five weeks later, following a cholecystectomy.

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[5] Crymble: Brit. Med. Jour., Oct. 15, 1910.

COMMENT

These two cases were extremely interesting, and strongly emphasized three points: 1. The negative roentgen-ray examination, as the anastomosis worked perfectly. 2. The obstruction being caused by a too rigid opening in the mesocolon, and by structures close to it. 3. The point of exit of the jejunum in Case 2 and the direction of the anastomosis rendered necessary (left to right), in order to prevent angulation.

SUMMARY

1. A gastro-enterostomy is a mechanical affair, the chemistry of the alkaline duodenal contents playing a negative rôle.
2. It must assume a double function, draining constantly and freely the gastric and also the duodenal contents into the efferent jejunum.
3. A roentgen-ray examination may disclose the anastomosis working perfectly with marked symptoms of vomiting, etc., owing to the fact that the duodenum is obstructed by the dorsal border of the mesocolon.
4. The point of origin through the mesocolon is not constant, and the anastomosis should be made accordingly in the most convenient direction.
5. Occasionally the inferior border of the transverse mesocolon forms a distinct fold over the duodenojejunal flexure which, when attached to the bowel, may form a point of obstruction, even before and also after a gastro-enterostomy is performed.
6. If this fold at the time of operation is found to be developed sufficiently to constrict the bowel, it should be divided between ligatures.

Opium, Morphin and China.—In an address by Dr. Wu Lien Teh at the National Medical Congress in Canton, China, he said that the year 1917 would be made historic because of the banishment of opium, the curse of China for seventy-five years. The ten-year agreement between Great Britain and China regarding the importation of opium expired in March. Dr. Wu, however, gave warning of the alarming increase of the importation of morphin. In 1911 it is said from Great Britain alone came 5½ tons of morphin; in 1914, 14 tons, and the estimate for 1916 was over 16 tons. In the provinces of Manchuria and Shantung the ravages of the drug are dreadful, more than half of the "jail-birds" showing signs of the needle, and thousands of professional beggars and other poor people in the northern cities becoming victims and many dying in the winter months, not from cold, but from inability to work on account of the morphin habit. The practice, first introduced by emigrants from Swatow, is increasing rapidly. The drug is put up in small packages, sometimes with fancy names, such as white powder, soothing stuff, dreamland elixir, etc.

BLADDER DISTURBANCES DUE TO NERVE LESIONS *

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The occurrence of bladder disturbances as the early or predominant symptoms of certain rather unusual nerve lesions was called to my attention by two cases, one of syringomyelia and one of multiple sclerosis. Unless the possibility of such an etiology is borne in mind, the urologist may fail to find the reason for the persistence of certain abnormal conditions in the bladder.

Search through the literature of the past four years failed to reveal more than three papers on the subject written from the urologic point of view.[1] Caulk and Greditzer[2] call attention to the relaxation of the vesical sphincter in tabes dorsalis, dementia paralytica, tumor or gumma of the spinal cord, postapoplectic conditions, exophthalmic goiter, paralysis agitans, lead poisoning, and the continuous retention catheter.

Koll[3] and Greenberg[4] have both written about the diagnosis of nerve lesions by the use of the cystoscope, but nowhere in urologic writings have I found reference to the vesical aspects of certain diseases of the nervous system. Boxwell,[5] a neurologist, has published a brief but fairly comprehensive discussion of the subject, and mentions instances of vesical disturbance in cases of myelitis, alcoholic neuritis, hemiplegia and tabes. According to the neurologists, bladder disturbances are frequent and sometimes early accompaniments of various nerve conditions which are not mentioned by urologists. It would seem probable that some of these patients are seen first by the latter, and possibly, in the course of routine treatment, escape a correct diagnosis.

The exact relationship between disturbances of the bladder function and the pathology of nerve lesions is not always clear. In fact, the physiology of the normal act of urination is not absolutely definite. Langley and Anderson[6] have shown that the bladder in cats, dogs and rabbits receives motor fibers (1) from the second to fifth lumbar nerves, the fibers passing through the inferior mesenteric ganglion and reaching the bladder by way of the hypogastric nerves, and (2) from the second and third sacral spinal nerves, reaching the bladder by way of the nervi erigentes and the hypogastric plexus. The nerve fibers from the sacral cord seem to be more actively concerned in the reflex of urination; stimulation of the lumbar fibers sets up only gentle contractions of the bladder.

The classical work of Goltz[7] in 1874 established the general principles of the vesical reflex. He pointed out that gradual distention of the bladder induced gentle contractions. These expressed several drops of urine into the posterior urethra, causing thereby a sensory stimulation. This—the afferent part of the reflex—aroused the efferent impulse by which the bladder is made to contract vigorously and the sphincters to relax. Goltz showed that in dogs with spinal cord severed between dorsal and lumbar regions the reflex still existed, and that it persisted even when the lumbar cord was entirely destroyed. Thus it was established that the act of micturition is a reflex of a very primitive type, requiring not even a spinal center. The problem is complicated, however, by the fact that this reflex is very completely under the control of the will.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Since this paper was written, my attention has been called to two articles bearing on this question. Lewis, Bransford: Contra-Indications to Surgical Intervention in Obstruction at the Vesical Neck, Tr. Am. Urol. Assn., 1915, p. 274; Studies in Obscure Forms of Prostatic Obstruction and Vesical Atony, ibid., 1914, p. 13.

[2] Caulk and Greditzer: Observations on the Bladder in Diseases of the Central Nervous System, Interstate Med. Jour., 1916, **23**, 36-41.

[3] Koll: Study of Twenty-Five Tabetic Bladders, Surg., Gynec. and Obst., 1915, **20**.

[4] Greenberg: Cystoscopy as a Diagnostic Aid in Spinal Disease, Med. Rec., New York, 1916, **90**, 634-636.

[5] Boxwell: Disordered Bladder Function, in Nervous Diseases, Tr. Roy. Acad. of Med., Ireland, 1914, **32**, 63.

[6] Langley and Anderson: Jour. Physiol., 1895, **19**, 71.

[7] Goltz: Arch. f. d. ges. Physiol., 1874, **8**, 478.

Before the bladder is anywhere near full, one can initiate the act of urination. By consciously relaxing certain perineal muscles and contracting others in the abdominal wall, one probably squeezes out the first few drops, which are sufficient to set the reflex in motion. The act then becomes automatic, unless, by a definite exertion of the will power, one closes the external sphincter and holds it shut until the contractions of the bladder have ceased. Conversely, when the bladder is overdistended, and urine squeezed into the posterior urethra sets in motion the reflex, the carrying out of the reflex can be prevented by an exercise of will power.

It is evident that the nerve mechanism of micturition is vulnerable at several points. If the roots of the sensory nerves are affected, as in tabes, the reflex arc is broken. If communication between the lower centers and the brain is interrupted, the act should theoretically become purely reflex and should be free from the inhibitive influence of the brain.

In general, disturbances of the bladder due to nerve lesions take one of several forms:

1. Those due to irritation of the sensory nerves, giving rise to frequency, urgency and hyperesthesia of the bladder neck. This occurs sometimes in tabes, in syringomyelia and in multiple sclerosis.
2. Retention, partial or complete, due to spasm of the external sphincter. Barney[8] explains this phenomenon in his careful work on tabes dorsalis. This condition occurs in other diseases besides tabes—in multiple sclerosis for example. It may be followed by dribbling from an overdistended bladder, but this is due primarily to retention.
3. True incontinence due to paralysis of the sphincters. This occurs in later tabes, in transverse myelitis of the lumbosacral region, and in syringomyelia.
4. Involuntary micturition. This may occur when the lower centers are cut off from the higher, as in trauma of the cord or in transverse myelitis, when these lesions are situated above the lumbar segments. The bladder will empty itself when the stimulus caused by increasing distention becomes sufficient.

Probably the most common disturbance of the bladder from the neurologic point of view is tabes dorsalis. This subject was worked up by Barney in 1910, and little can be added today to his thorough exposition. It would be unnecessary to take up the reader's time by a recapitulation of the well known course of that disease.

The only extraordinary cases which I found reported were those of tabes in children, described by Barkan.[9] He speaks of a girl of 9 years with tabes and nocturnal enuresis, and says that he has seen twelve cases of tabes in children within two years.

Another lesion of the spinal cord which may cause bladder disturbance is myelitis. If the lesion occurs in the lumbar cord, according to Gowers,[10] it will cause loss of vesical reflexes which results in dribbling without retention. If above that region, the reflex is first lost, and then becomes hyperactive. In other words, there is first retention, then involuntary voiding.

Trophic disturbances in myelitis may cause ulceration of the bladder.[10]

Syringomyelia is the occurrence of a glia-lined cavity in the gray matter of the cord. The symptoms are necessarily variable, depending on the location and size of the cavity. Jelliffe and White[11] speak of the loss of sexual desire and of testicle pains which occur. They refer to analgesia of the bladder and persistent priapism as occasional symptoms. In regard to bladder disturbances, they say that these "are not the rule, although at times appearing, usually late in the disease. When appearing early, they are apt to be transitory. They may be sensory or motor, irritative or paralytic. Cystitis is not infrequent in the later stages of the disease." With the dorsolumbar type of the disease, involvement of the bladder and rectum is not infrequent, while in the sacrolumbar type, it is usually present.

A patient with syringomyelia exhibiting marked bladder symptoms entered the Massachusetts General Hospital on the genito-urinary service in October, 1916. The relation between the vesical disturbances and the nerve lesion was not perfectly clear, yet we were unable to account for the former in any other way. The patient was a woman of 30, a domestic who had had three illegitimate children. Two of them were born dead; the last one, which lived, was born five years before. The patient complained of painful, burning micturition of eight weeks' duration. Urination was followed by dribbling, tenesmus, and a desire to urinate again. The urine contained pus and colon bacilli. Cystoscopy was done under spinal anesthesia. Considerable trabeculation of the bladder wall with a distention of 6 ounces was noted. Both ureters were catheterized; a small amount of pus and a growth of colon bacilli were obtained from each. Roentgenoscopy and the Wassermann test were negative. The peculiar thing was that during her twelve days in the hospital, the patient continued to have constant severe spasms of the bladder, in spite of every kind of local treatment. Also, she had, on several separate observations, a residuum of 6 ounces.

She was seen in consultation by Drs. Taylor and Paul, who made the diagnosis of *syringomyelia*, because of atrophy of the small muscles of the hands and various sensory disturbances.

Multiple sclerosis, or disseminated sclerosis, is characterized by the occurrence of small patches of sclerosis in the spinal cord, or brain, or both. These patches are due to the degeneration of the included nerve tissue, which is later replaced by neuroglia. Their size varies from that of a pea to that of a walnut, and they involve the white matter primarily. Sometimes the nerve roots are affected as well.

The etiology of this condition is unknown. It occurs most often between the ages of 25 and 35 years, and although naturally the symptoms vary according to the location of the patches, the most usual symptoms are loss of muscular power in the limbs, a jerky incoordination, nystagmus, and staccato utterance. The individual is prone to outbreaks of emotion, manifested either by laughter or by tears. Babinski's sign is always present; the absence of abdominal and epigastric reflexes is a valuable point in the diagnosis (Gowers[12]).

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[8] Barney, J. D.: The Care and Management of the Tabetic Bladder, Boston Med. and Surg. Jour., 1910, **163**, Nos. 25 and 26; 1911, **164**, No. 1.

[9] Barkan, H.: Infantile and Juvenile Tabes, *California State Jour. Med.*, 1914, **12**, 488-491.

[10] Gowers: Diseases of the Nervous System, 1903, **1**, 247, 361.

[11] Jelliffe and White: Diseases of the Nervous System, 1915, p. 355.

The importance of this disease to the urologist is suggested by the words of Collins and Baehr.[13]

> Frequently there is associated a weakness of the bladder; there is inability to hold the urine as well as usual, and there may be urinary incontinence at times. . . . Urgency is an early symptom, and is due to hypertonicity of the bladder muscle. Intense spasms of the sphincter may occur, causing retention; later in the disease, incontinence is present practically always.

Sixty-five per cent. of Collins and Baehr's cases were of the spastic type, usually accompanied by bladder disturbances. Jelliffe and White[14] say that the bladder is involved in from 75 to 80 per cent. of all cases. "The patient feels a sense of insufficiency, and has to strain to pass water. Complete paresis with incontinence is rare." The many ups and downs in the bladder symptoms are remarkable. The disease is progressive, with intervals of improvement, but care of the bladder as in tabes would seem to be indicated.

The bladder manifestations of multiple sclerosis described by these authors were reproduced with striking accuracy in the following case:

M. C., a nurse, aged 28, was seen about one year ago. Four years before, while in training, she became "run down" and very nervous. Previously, she had always been well, except for measles. Accompanying her breakdown were bladder symptoms—great frequency and inability to hold the water. Association with insane persons led her to fear that she might have some nervous disease, so she went to the Massachusetts General Hospital and had an examination of the spinal fluid. This was normal. She returned to work and has remained at it, in spite of a sense of weakness in the legs, and what she characterized as a "weakness of the bladder." At times she wet the bed at night.

She was a rather pale, tired looking girl. The pupils reacted normally. There was no Romberg; the knee jerks were normal; general examination was negative; the kidneys were not palpable; the pelvic organs were normal. The urine by catheter was hazy, revealing no sugar nor albumin. A centrifuged sediment showed some pus cells, a few red blood cells, and vast quantities of staphylococci. No tubercle bacilli were found. Roentgenoscopy was negative for stone.

The bladder contained 4 ounces of residual urine, with distention of 8 ounces; the bladder wall showed a fine trabeculation; the mucous membrane was clean. The ureteral orifices were normal. Both ureters were catheterized with a flow of normal urine.

Not being awake to the diagnosis, and finding the urethra abnormally red and granular, I treated her with urethral applications, sandalwood oil and bladder lavage. The residual urine remained about 4 ounces throughout July, August and September. In November, I noted that her chief trouble was fatigue in the front of the legs. The bladder symptoms improved a very little, the greatest improvement following rest from work, bromids and belladonna.

The patient was very emotional, laughing one moment, crying the next. On December 22, the residuum was only 1½ ounces. In December, I sent her to Dr. George Clymer for neurologic examination. He reported that he found a positive Babinski, negative abdominal and epigastric reflexes, and positive ankle clonus—in short, that she unquestionably had multiple sclerosis.

He started treatment with solution of potassium arsenite (Fowler's solution) and the application of electricity over the bladder. Whether or not as a result of this treatment, the patient showed remarkable improvement. The residuum cleared up, the urine became normal, and for two months she wet the bed only during menstruation. She has had a slight remission, but generally speaking is much better, and has started to work again.

I have reported this case at some length because it is a striking example of the vesical manifestations of multiple sclerosis. Bladder trouble was practically her only complaint, yet there was the definite background of a nervous disease which escaped detection on routine physical examination.

The presence of residual urine should have suggested at once the necessity of a more thorough nerve examination.

Syphilis of the brain and cord, whether of the diffuse type or circumscribed, as in gumma, may produce disturbances of the bladder, varying with the location and extent of the lesion.

Tuberculous meningitis may do likewise. Pearson,[15] in 1902, and Moody[16] in 1916, called attention to the fact that retention of urine coming on in a person with tuberculosis is an early symptom of an invasion of the meninges. Moody quotes four cases, all proved by necropsy, in support of this theory.

Neuritis of alcoholic origin (Boxwell) may produce incontinence, and that postdiphtheritic neuritis can result in retention, the following case will show:

In 1909, J. K. (162960), aged 62, a laborer, was sent into the Massachusetts General Hospital from the outpatient department because he was found to have a residuum of 30 ounces. His only previous illness had been diphtheria twenty years before. At that time he had stoppage of water, and had had dribbling of urine, with pain at the beginning of urination, and he has had difficulty in starting the stream ever since. There was slight frequency at night. The reflexes were normal. The patient's general physical condition was negative except for some cardiac hypertrophy. The prostate was not enlarged nor tender. The catheter passed easily and drained 30 ounces of foul urine. He was seen by the consulting neurologists, who found evidence of nerve lesions. A cystoscopy was done by Dr. Lincoln Davis, who found nothing obstructive, and thought the bladder condition due to his diphtheria. Epididymitis set in, then pericarditis. He died, and at necropsy, the kidneys showed suppurative nephritis, the ureters and pelves were dilated, the bladder showed a thickening of the walls with fibrous induration in the region of the outer coat and much hypertrophy of the trabeculae. Between the hypertrophied trabeculae in several places, there were smooth walled diverticula, the largest being about 3 cm. in the greatest dimension. The prostate showed very slight, if any, enlargement of the lateral lobes. There was a very small eminence in the situation of the median lobe. The prostatic urethra was free and somewhat dilated.

That various forms of insanity are accompanied by disturbances of the vesical and rectal sphincter is, of course, well known; the bladder disturbances are usually late symptoms.

Not so much in them as in the field of organic nervous diseases, such as multiple sclerosis, syringomyelia and tabes, is cooperation between urologist and neurologist most necessary. The most troublesome symptom of those conditions may be vesical, and the first assistance sought by the patient may be from the urologist. It is well for the latter to have in mind the fact that a nerve lesion may be the cause of marked hyperesthesia of the bladder, characterized by great frequency, or of unexplained residual urine in cases without urethral obstruction.

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[12] Gowers: Diseases of the Nervous System, **2**, 543.

[13] Collins and Baehr: Disseminated Multiple Sclerosis, Am. Jour. Med. Sc., 1914, **148**, 495-520.

[14] Jelliffe and White: Diseases of the Nervous System, 1915, p. 379.

[15] Pearson: Retention of Urine in a Patient with Tuberculous Meningitis, Clin. Jour., December, 1902.

[16] Moody: Retention of Urine in the Adult, Without Known Cause, a Sign of Tuberculous Meningitis, Lancet, London, 1916, **1**, 104.

ABSTRACT OF DISCUSSION

Dr. W. C. Quinby, Boston: I think it would be of value to place along side of Dr. Smith's results those of a rather hasty investigation of cases occurring in the last four years at the Brigham Hospital in Boston, in the service of Dr. Cushing, which showed definite bladder lesions and bladder symptomatology due to various known lesions of the cord. The bladder symptoms following these various spinal cord lesions depend entirely on the location and nature of the lesion; therefore we find the greatest difference in the symptoms, as has already been pointed out by Dr. Smith. In going over the cases at the Brigham I have chosen twenty which showed definite symptomatology in the bladder. These were as follows: 1 case of transverse myelitis; 3 cases of spinal cord endothelioma; 1 case of spinal cord angioma; 1 case of metastatic sarcoma; 1 bullet wound of the cord; 12 cases of fracture of the spine; 1 case of hematomyelia without fracture of the spine.

I wish to call attention merely to the broad deductions and conclusions which one can draw from a study of these cases, without going into the details at this time.

A lesion at the proper level to cause a complete paraplegia always involves the bladder, causing a paralysis of the detrusor, with resulting retention of urine. Following this, at a later or earlier period according to the severity of the injury, there supervenes incontinence with overflow; then, later on, if the patient lives and the condition persists, true incontinence, with a greater or less degree of residual urine, is usually seen. Sooner or later infection always occurs. Sometimes it occurs with startling severity, with symptoms and signs of infection of the kidney and bladder of greater intensity than those signs from the spinal lesion, and death ensues. In other cases, however, the infection may be partly resisted by the patient, and fairly often cases occur showing a chronic cystitis and pyelitis from time to time, increasing in intensity and causing symptoms of general sepsis.

Dr. Bransford Lewis, St. Louis: There is one phase of the subject of involvement of the mechanism of urination that is interesting rather more from the urologic standpoint, and I read a paper on the subject before the American Urological Association about three years ago, under the title of "Studies in Obscure Forms of Prostatic Obstruction and Vesical Atony" (Ann. Surg., March, 1915). During the last ten years or so there have appeared from time to time discussions of prostatic obstruction by very able men, like Thomson Walker of England, Albarran and others, and Germans of equal prominence, in which they spoke of cases of prostatic obstruction with what they termed unrecognizable causation. They, to their own satisfaction, excluded nervous origin and let it go at that—apparently what we used to term idiopathic, whatever that means. I discussed the subject and adduced a number of cases, and from my standpoint I could not believe there was such a thing as a retention of urine, atony and all those sequelae, without causation, and in the study of obscure forms of prostatic obstruction mentioned I declared they were due to certain physical conditions that were not recognizable according to the methods employed for diagnosis; such, for instance, as a moderate degree of contracture of the vesical neck that was not recognizable by the various methods of instrumentation, either endoscopic or cystoscopic, until one got one's finger right there and felt the contracture that until then was not recognizable.

Another form of obstruction that ought to be given more consideration, I said, was that of syphilitic influences through the spine, producing interference with the evacuation of the bladder without there being an evident tabes or any lesion that was apparent excepting on the most careful analytic study of the case. And that applied to younger individuals as well as to the old ones, and also to inherited syphilis. I spoke of one patient who had been subject to numerous surgical operations; he had had five major operations done on him, and he was only about 18 or 20 years of age when I saw him, and he had never been able to urinate with any degree of satisfaction. He had never acquired syphilis, but he did have inherited syphilis that had bestowed on him this stigma that had required all his attention all of his life. It was proved by the Wassermann and other tests, and he improved under the influence of antisyphilitic treatment.

Dr. John T. Geraghty, Baltimore: In connection with Dr. Smith's paper and Dr. Lewis' discussion, I would disagree with Dr. Lewis. I was much astonished a few years ago to find some cases of obstruction to urination for which we could find no cause. We supposed, of course, that they were probably unrecognized cases of contracture of the vesical neck. Operation to divide the vesical neck, however, gave no relief. We have had now a series of six cases of that type in which all of the clinical findings were simply those found with a spinal cord lesion; sometimes dilatation of the vesical orifice, residual urine as a rule, and all of the classical symptoms that go with the spinal cord cases that Dr. Smith has mentioned. Two of these cases have come to necropsy, and we were able to obtain a most complete necropsy, including the central nervous system, and the most careful studies of the central nervous system, and the bladder and the urinary apparatus failed to show the slightest cause for the obstruction. There is only one explanation which I can think of which will account for these cases, and that is that we will probably have to admit the possibility of a peripheral lesion; that it is possible to have a peripheral neuritis which will affect the bladder. That is hard to understand, because if there is a degeneration of the peripheral nerves, sooner or later there should be evidences of that in the spinal cord. In these cases there was nothing in the spinal cord to indicate that the nerves had been injured. Furthermore, these two patients, instead of having atrophied bladders, had hypertrophied bladders. In each instance the vesical orifice was dilated; there was no valve formation, no diaphragm.

Dr. C. M. Harpster, Toledo, Ohio: The idea that trabeculation is one of the earliest premonitory symptoms in tabes I think is not absolutely substantiated. I should like to call attention to a very unique case the study of which it was my pleasure to take part in. This was of a man who had a fracture of the fifth and sixth cervical vertebrae. If I remember my anatomy correctly, the brachial plexus is made up of the four lower cervical and first dorsal nerves.

I was especially interested in studying the effect of this injury of the spine on his bladder phenomena. We studied this patient for about six months, and we could put him to sleep, make him cease talking and paralyze him from the neck down at will. That is, we had him in a plaster helmet and when that was removed he would immediately lapse into a paralysis of speech, a paralysis of one or both limbs and of the bladder and rectum. I repeatedly induced these phenomena; that is, when the cast was removed or replaced for investigation this patient had an incontinence of his urine. We had to catheterize him. He always had an incontinence, which was always relieved on the replacement of the cast. By making traction on his neck and chin, even if he could not speak to us, he immediately would begin to talk and move his arm, and on the removal of the pressure of the fragments of bone on the cord he could move his limbs and void his urine.

Dr. Leo Buerger, New York: I readily appreciate that the phenomena of urination are developing into an understandable quantity. If I understood Dr. Smith correctly he said that injuries to the spinal cord above the lumbar region seemingly had no effect on urination. Dr. Quinby said that a fracture of the spine had caused incontinence and other phenomena. Now, the bladder is developed from the rectum; it is a part of the same tissue. If that be true about this etiologic factor neurologically that the spinal cord does not necessarily control urination, it would bring it down to the view that it must be either due to the sympathetic or to the vasoconstrictors or the vasodilators—the vasomotor system. This becomes very interesting, because from the vasomotor system we might have any sort of a condition producing urinary symptomatology.

I had a man who had not been able to pass his urine and every sort of an examination had been made on him. He was a man of importance in his neighborhood. He could not urinate, and there was no known reason. He was the father of healthy children. He was a very healthy appearing man and came from healthy antecedents. I played with him for about six months. At the end of that time he was riding one day in his automobile, the chauffeur was intoxicated, there was an accident in which the patient's back was injured, and he has been able to urinate ever since.

Dr. Martin Krotoszyner, San Francisco: In every otherwise not explainable bladder lesion of functional character the urologist always must be on the lookout for the possibility of an underlying etiologic factor in the cerebrospinal center, the insidious onset of which may first manifest itself by bladder symptoms. A great many of these conditions are either diagnosed too late for adequate specific treatment, or, especially when occurring in men of the age of prostatism, are diagnosed and treated as lesions due to mechanical obstruction. The solution of that problem, to my mind, does not depend so much on competent neurologic counsel, which often is obtained when nerve centers are irreparably damaged, but rather lies in the acquisition on the part of the urologist of a better knowledge of neurologic diagnostic methods as the only means of establishing an early diagnosis.

Dr. William F. Braasch, Rochester, Minn.: The value of cystoscopic data in the early diagnosis of neurologic conditions is not generally appreciated among neurologists. The cooperation of the urologist and the neurologist is often very necessary. Whenever there is any doubt as to whether or not a patient has a central nerve lesion he should be referred to a competent urologist for cystoscopic data. In a high percentage of the cases such data are of great practical value to the neurologist. The well-known changes in the bladder following cord lesions are of two types, namely, trabeculation and dilatation of the internal sphincter. The dilatation of the internal sphincter takes place, in the majority of cases, in the later stages of nerve lesions. The first change is trabeculation, which, as you know, with a cord lesion is quite typical of a large percentage of cases. The trabeculae appear ridge-like and are confined largely to the upper portion of the bladder. Without any nerve lesion, however, patients are frequently seen with irritable bladders which on cystoscopic examination appear trabeculated similarly to nerve lesions. We cannot always, therefore, depend on the cystoscopic picture, particularly in the early stages of nerve lesion.

Dr. Edward L. Keyes, Jr., New York: One diagnostic point has been of so much value to me that I venture to bring it to the attention of this assembly. I have in only one case known a tabetic with bladder paralysis to show active ankle jerks, though a number of patients have shown normal knee jerks. Therefore, it seems wise to examine all of our prostatics for ankle jerk. There are cases in which we cannot elicit the ankle jerk and in which there is no cord lesion; nevertheless the absence of the ankle jerk will frequently put us on the right track. In one instance I remember particularly, while the neurologist was in the ward examining the man a laboratory report on the spinal fluid came in. The neurologist said that although the patient had absent ankle jerks and had loss of deep muscle sense in his calves, nevertheless he had no spine lesion. Whereupon the report was read showing characteristic tabetic changes in the spinal fluid.

Dr. Charles W. Bethune, Buffalo: There is another sign which I have frequently observed in tabetic bladders; that is, a gaping of the ureter due to paralysis. Sometimes if one can turn the cystoscope in the right direction one can see a quarter to half an inch up the ureter. If a ureter catheter is introduced through the cystoscope in tabes the patient is unable to feel contact at any point within the bladder.

Dr. Winfield Ayers, New York: I believe we can make one of the earliest diagnoses of beginning tabes in any form by examining the bladder. I recall the last case that came under my observation. The patient had been under a first-class man in New York, who had been treating him with bladder lavage for about a year. On my first observation I immediately asked him if he had had syphilis. He said he had. I tested him for the lesions commonly shown as tabetic, for instance, the pupil, knee jerk, etc. The pupil reacted perfectly, the knee jerk was increased, the ankle jerk was increased. I had a Wassermann made and it was four plus. The only symptom the patient had was a twitching. In washing his bladder his legs would twitch. I put him on a course of sodium cacodylate and all of his bladder symptoms disappeared. His jerk has not disappeared, but he is beginning to have a loss of contraction of the pupils to light, and that seems to me to indicate that he came to me in the pretabetic stage. I think that by seeing these patients early, recognizing them at once from the bladder, the possibly severer effects of tabes may be blocked off. I have not had so much experience in the other forms, but in the cases of fracture of the spine that I have seen, in almost every instance they followed out the symptoms described here.

Dr. G. G. Smith, Boston: The record in the paper of nerve lesions is very incomplete, I realize, and yet I felt from my comparatively slight study of the situation that I had learned several valuable lessons. There are a number of nervous diseases causing bladder symptoms which must be diagnosed by a consideration of something more in a patient's condition than the mere examination of knee jerks, pupils and Romberg. Unless one is quite familiar with the symptomatology of some of these nervous diseases, one is likely to overlook them. There is no reason why the urologist should not know these things, but most of us do not. I know I was entirely ignorant of the symptoms of multiple sclerosis, and I had to look up the description of syringomyelia before I knew what that was.

I think the diagnosis of nerve lesions with the cystoscope is difficult, because, as Dr. Braasch pointed out, the bladder manifestations are necessarily limited; we have practically only three things: first, hyperesthesia; second, retention; third, relaxation of the sphincter, with perhaps dribbling. Dribbling may be caused by any one of a number of different nerve lesions, and these different nerve lesions are not always easy to reconcile with the pathology of the disease.

Dr. Geraghty spoke of unexplained bladder disturbances and said that they might be caused by a peripheral neuritis. I would simply say in connection with that that I did have one such case, one of postdiphtheritic paralysis, in which a postmortem examination of the spinal cord was not made, but in which apparently a peripheral neuritis limited to the bladder was the thing that was causing the symptoms.

In regard to Dr. Buerger's remark that I had said injuries above the lumbar cord did not cause symptoms, I think he did not quite understand what I said. I said that injuries of the cord above the lumbar region would allow the reflex to go on, but if the lower centers were cut off from the brain the patient would not be able to stop the act of urination. It is a fact, however, that complete section of the cord is followed by retention of urine at first, although theoretically it should have no effect on the act of urination.

Work of Rockefeller Foundation in China.—The China Medical Board of the Rockefeller Foundation has made its annual report describing the preliminary steps which have been taken in Chinese cities to "promote the development of a comprehensive and efficient system of medicine in China." The main plan of the board is to establish in Peking and Shanghai medical schools which shall be of the same grade as the better medical schools of this country, but the creation of these institutions has been delayed by the failure of Chinese schools to turn out students sufficiently well grounded in science and general education to take advantage of these courses in medicine. Hence, the first step has been to open in Peking a premedical school. The board has granted $150,000 to the Tsinafu Union Medical College, which has been cooperating in furnishing the necessary preliminary training to Chinese students. Until the medical school is built by the China Medical Board its work will be carried on by the school and laboratories of the Chinese Red Cross Society. This plant was operated by the Harvard Medical School of China until July, 1916, when it was taken over by the Rockefeller Foundation. While preparing for the founding of these two medical colleges, the foundation extends medical help through various missionary societies.

DIARRHEAS ACCOMPANYING GASTRIC ACHYLIA*

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In the study of the diarrheas accompanying gastric achylia, it is essential that we have a rational conception of that condition. It is my intention in this paper to consider first some studies which we have carried out on achylia and then to follow it by our observations on the form of diarrhea accompanying that condition. In a former contribution, I pointed out the fact that by means of fractional analysis, it was possible to throw considerable light on certain phases of achylia and to make two broad distinctions, namely, a differentiation between true and false, or spurious, achylia, the former being a condition which persists throughout the entire stage of gastric digestion, the latter being simply a form of delayed gastric secretion, since after a period of one hour and a half there is to be found a perceptible secretion. If this method had been employed in previous studies of this subject, the number of true achylias recorded would be very much less. This does not alter the fact, however, that these spurious forms of achylia are likewise accompanied by diarrhea in a certain proportion of cases. The second distinction which was brought out in that paper was the differentiation between psychic achylia embracing a suppression of the first stage, and a chemical suppression which for the want of a better name we called chemical achylia. These are both spurious or false achylias, since there is not a total suppression of secretion.

TABLE 1.—EXPERIMENT WITH 0.2 PER CENT. HYDROCHLORIC ACID, 30 C.C. "REPEATED"

No.	Time	Vol.	Character	Total	Sahli	NH_2	Pep
Resid.		24	Mucus-like; opalescent; colorless	2.0	0.0	5.0	
1	9:17	4	Liq. fairly turb. L. yel. (regurg)	26.5	22.5	3.0	0.5
2	9:22	3	Liq. fairly turb. L. yel. (regurg)	17.5	13.5	4.0	
3	9:27	4	Liq. fairly turb. L. yel. (regurg)	11.5	5.5	4.5	0.1
4	9:32	2	Empty mostly mucus L. yel	9.0	....	6.0	
Give	9:36	30	0.2 per cent. hydrochloric acid	53.5	53.0	0.0	
5	9:41	4	Clear v. sl. yel. (regurg)	31.5	32.5	3.0	0.5
6	9:46	5	0.1 muc. up v. sl. turb. yel	29.5	25.0	3.5	1.0
7	9:51	5	0.1 muc. up v. sl. turb. yel	25.0	20.5	4.0	1.0
8	9:56	2	Empty 14 mucus up turb. yel	18.5	....	5.0	
Give	9:59	30	0.2 per cent. hydrochloric acid	53.5	53.0	0.0	
9	10:04	3	Clear colorless	37.0	34.5	3.0	1.0
10	10:09	5	0.5 Muc. sl. turb. L. yel. (regurg)	31.0	26.0	4.5	1.75
Lavage		80	V. sl. turb. sl. yel	1.5			

TABLE 2.—EXPERIMENT WITH SODIUM BICARBONATE, 0.5 PER CENT. "REPEATED"

No.	Time	Vol.	Character	Total	Sahli	NH_2	Alk.
Resid.	9:13	18	Mostly muc. colorless opalescent	2.0	0.0	5.0	44.5
1	9:28	5	Clear colorless, tr. muc	....	....	...	44.5
2	9:33	4	Clear colorless, tr. muc	....	....	...	45.5
3	9:38	5	Clear colorless, tr. muc	....	....	...	45.5
4	9:43	5	Clear colorless, tr. muc	....	....	...	44.0
5	9:48	3	Empty colorless v. sl. yel (regurg)	....	....	...	43.5
Give	9:51	30	0.5 per cent. sod. bicarb. 15 degrees C.	....	....	...	64.5
6	9:56	5	0.2 down muc. Liq. clear deep yel	....	....	...	47.5
7	10:01	4	0.2 down muc. Liq. clear deep yel	....	....	...	44.5
8	10:06	5	Flakes of muc. yellow	....	....	...	43.5
9	10:11	4	Flakes of muc. yellow	....	....	...	43.5
10	10:16	5	Flakes of muc. yellow	....	....	...	41.5
11	10:21	4	Flakes of muc. yellow	....	....	...	40.5
Give	10:24	30	0.5 per cent. sod. bicarb. 15 degrees C.	....	....	...	46.0
12	10:29	5	0.1 down muc. liq. clear colorless	....	....	...	46.0
13	10:34	6	0.2 up muc. liq. sl. turb. L. yellow	....	....	...	46.5
14	10:39	5	Flakes of muc. yel	....	....	...	43.5
15	10:44		Empty; no sample				

I wish to present some cases illustrating different phases in the mechanism of achylia. I am aware that gastric achylia is associated with many toxic, infectious, nervous and vascular disturbances, but I have attempted in the limited number that I have been able to study to definitely attach a cause, the removal of which resulted in a disappearance of the gastric condition. The following cases to my mind represent at least a close association of the disappearance of a causative agent with the clearing up of a gastric condition. Apparently, it can come from fright or nerve inhibition (Case 1, student), through severe blood dyscrasias (Case Wa), through direct infection in the gastric wall (Cases Si, Ka, Du, H., K., D., T.), through a ductless gland disturbance (Case K.), besides the chronic forms of inflammation of the stomach (Cases Hi., and Mrs. H.). At least in the cases cited there is an association between improvement in the gastric condition and a disappearance of the cause.

The studies that have been carried on in the department of physiologic chemistry under the direction of Drs. Hawk, Bergeim, Fishback, Fowler, Smith and myself seem to indicate that there are many important points regarding the human gastric secretion that have not been sufficiently emphasized. In the first place, in a series of studies on the psychic secretion in normal untraumatized persons, we were able to demonstrate a very pronounced psychic secretion lasting from sixty to eighty minutes (from 105 to 274 c.c., averaging 122 T. A.; from 74 to 114.5 c.c., averaging 97.3). Atropin reduced this secretion approximately two thirds as to both its quantity and its acidity, showing that even during this secretion there is probably initiated a chemical mechanism uncontrolled by atropin. On the other hand, there are persons in whom this secretion does not occur, and in a large series of persons subjected to several thousand fractional analyses (Carlson, Schmidt and others) in order to ascertain the action of the various foodstuffs in the stomach, we came across several perfectly healthy persons who presented a total and persistent gastric achylia.

On one of these persons we made a series of studies. This person was found to have a persistent achylia regardless of the type of food administered. An Ewald meal, toast, beef, beef extract with salt and pepper, were all incapable of inducing any acidity or any peptic activity. We therefore gave this person dilute hydrochloric acid on one occasion and sodium bicarbonate on another occasion. In both instances, although the substances were markedly different, the person poured out, or rather secreted, a fluid that served as a diluting agent, but possessed apparently none of the ordinary characteristics of the gastric secretion. In other words, it is probable that, even in achylia, there is poured out a secretion that, while not acid and not containing pepsinogen or renninogen, nevertheless might be capable of activating the intestinal secretion. Whether this occurs in pathologic cases, I cannot say, but we feel that our ordinary chemical methods did not develop the possibilities in this secretion. Experimentally, we found that it was possible to produce a marked delay in the appearance of the secretion by means of concentrated solutions of glucose and salt. Furthermore, it is possible by intermittent neutralization and feeding to produce a total anachlorhydria over long periods of time, as we learned from studies that we made in connection with ulcer treatment.

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* From the Jefferson Medical College.

* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

TABLE 3.—EXPERIMENT WITH ROAST BEEF, MEDIUM AND WELL DONE, COLD, 100 GM.

No.	Time	C.C.	Character	Total	HCl	NH_2
1	9:26	5	Mostly muc. few coarse fine Liq	3.5	0.0	7.0
2	9:41	5	Hom. f. & course. muc. little fl.	12.0	...	16.5
3	9:56	5	Hom. f. & course, muc. little fl.	14.0	...	19.0
4	10:11	4	Hom. muc. & meat decidedly red *blood*	13.0	...	16.5
5	10:26	3	Muc. w. tr. meat red (blood)	11.0	...	14.0
Lav.		62		3.5		

TABLE 4.—EXPERIMENT WITH ONE-FOURTH TEASPOONFUL BEEF EXTRACT, 250 C.C. WATER, SALT AND PEPPER, 50 C.*

No.	Time	C.C.	Character	Total	HCl	NH_2	Pep
1	8:44	4	Clear l. yel	7.0	0.0	7.0	0.0
2	8:59	4	Clear l. yel	6.5	0.0	7.5	0.0
3	9:14	7	Clear sl. l. yel. tr. muc	6.5	0.0	8.0	0.0
4	9:29	7	Sl. turb. v. l. yel., lot muc	7.0	0.0	7.0	0.0
5	9:44	5	Sl. turb. v. l. yel., lot muc	8.5	0.0	7.0	0.0
6	9:54	1	Clear v. l. yel. brown	8.0	...	6.0	0.0
Lav.		88	Clear colorless con. muc	2.0			

*Pepsins incubated 24 hours.

All these observations bring us down to the diarrheas accompanying achylia. In considering this subject we must realize these important points: 1. Approximately only 30 per cent. of patients with achylia present diarrhea, for many in my experience show constipation, and a large percentage show merely a tendency toward looseness of the bowels on slight provocation. 2. The incidence of diarrhea is almost as great in subacidities. 3. There can be no question that a simple total achylia alone is by no means followed by diarrhea. In the foregoing studies none of the experimentally induced delays were followed by looseness of the bowels, and in the instances observed among normal persons there was no diarrhea. We must therefore look not in the stomach, but elsewhere for an explanation of this phenomenon. The points which impress me in gastrogenous diarrhea are:

1. The apparently acute onset in many of the cases, ushered in frequently by signs of infection, not infrequently by some systemic disturbances.

2. The intermittence in the appearance of the symptoms. Many of these cases showed a marked intermission punctuated by simultaneous disturbances elsewhere.

3. The frequent association of evidence of inflammatory condition of the small bowel rather than simply exaggerated peristalsis as revealed by fecal study.

We have been told that the causative factors in gastrogenous diarrhea are: (1) gastric hypermotility resulting in too rapid evacuation of insufficiently digested material from the stomach, which results in (*a*) irritation and exalted small intestinal peristalsis, and (*b*) even inflammation of the intestine or infection; (2) the association of a similar disturbance in the secretions of other organs, such as the pancreas, and (3) a removal of inhibition of fermentative changes in the bowel (normally controlled by gastric hydrochloric acid) resulting in a form of fermentative catarrh of the bowel.

I have attempted to study, from all these angles, those cases in which there was looseness of the bowels or diarrhea, and it seems to me that the following statements are justifiable: It is hardly likely, with the exception of profoundly heightened nerve irritability, that increased gastric peristalsis is alone responsible for the appearance of diarrhea, since I have frequently injected improperly digested material into the duodenum through the duodenal tube without inducing looseness of the bowels. I have even injected irritants such as silver nitrate and iodin into the duodenum without inducing diarrhea. It is my belief that any acceleration of gastric peristalsis induced simply by rapid evacuation is lost in the small bowel and has little to do with, or at least does not control, the movements of the colon. Irritating material as long as it remains irritating might, however, induce hyperperistalsis, but even partially digested or undigested fibrin or connective tissue, when introduced into the small bowel, is incapable of producing this effect. In other words, intestinal compensation is the normal safeguard, and must be considered in any explanation for regular or even delayed bowel action in over half the cases of achylia. On the other hand, ruptured intestinal compensation, either through a primary weakness in the intestinal mechanism or a secondarily induced inflammation or infection, is, I believe, in most instances responsible for gastrogenous diarrhea.

I have been on the lookout for these cases for a long time, and in practically each case of unquestioned achylia in which there was looseness of the bowels, or even fifteen to twenty movements a day, there was associated with the condition certain other factors which more or less explain the condition. For instance, psychic disturbances were nearly always responsible for diarrhea (Potter's). On several occasions one patient had protracted periods associated, or rather ushered in, with signs of intestinal infection. In other cases (Simpson, Hirsch and Kane) the diarrhea came at intervals, nearly always associated with an unquestioned enteritis, an achylous gastro-enteritis. Mr. H. practically always developed diarrhea after the eating of certain kinds of food, particularly fish. Whether this was anaphylactic or not, I am not prepared to state. On four separate occasions covering a duration of several months, he was found to have a most persistent achylia. On three occasions he developed a diarrhea. At one time there were signs of cholecystitis, at another time unquestioned angiocholitis with slight jaundice, and in all cases there was a general enteritis. The connective tissue lientery, alone supposedly characteristic of achylia, is to my way of thinking rare. Nearly always the fecal formula will include evidences of small bowel infection, intimately mixed mucus, not infrequently biliverdin, and often poor fat digestion and deficient cellulose consumption. But rarely are there associated signs of pancreatic disturbance. In only one case could I find the two associated, and in that case duodenal intubation revealed a secretion simply giving the reactions for amylase, while the fecal studies showed deficiency in the digestion of all the foodstuffs. This patient, however, had chronic diffuse nephritis, and has since showed improvement in her gastric secretion as well as her ability to handle food. The diarrhea in gastric achylia may be of four types:

1. The first type comprises simply loose pasty movements containing little or no mucus, but undigested meat and connective tissue. Meat fibers are in clumps, but partially digested fibers are seen.
2. The second type is marked by watery movements with the above morphology and undigested cellulose; bile is converted; fats split are often unabsorbed.
3. The third type consists of either of the foregoing with excessive mucus. The mucus may contain excessive leukocytes or not.
4. The fourth, a greasy type, comprises two forms, one greasy, consisting of split fats and connective tissue and meat fibers, and a second in which an enormous amount of neutral fats predominate over normal often undigested starches.

TABLE 5.—RATE OF EVACUATION OF YEAST; ORANGE JUICE (1-3), 15 GM. YEAST*

No	Time	Inter.	Vol.	Procedure and Character	Count	Total	HCl	NH_3
Resid.	9:15		20					
Lav.	9:20		96					
L2	9:25	5	0					
....	9:30		200	Orange juice yeast 15 degrees C..	656,000			
1	9:47	15	192	Empty	....	43.0	22.5	4.5
E1	10:02	15	15	Empty	....	22.0	8.5	6.0
E2	10:09	5	5	Be sure empty	....	28.5	....	11.5
....	10:12	..	200	Orange juice yeast 15 degrees C..				
2	10:57	15	4	Empty				
E3	11:15	15	0	Empty				
E4	.....	5	...	Be sure empty not taken				
....	11:24	..	200	Orange juice yeast 15 degrees C..				
3	11:54	30	150	Empty	....	37.0	23.0	3.0
*Orange juice (analysis) 0.5 per cent urea					....	64.5	24.0	8.5

TABLE 6—TOAST, 35 GM.; DISTILLED WATER, 250 C.C.

No.	Time	C.C.	Character	Total	HCl	NH_2
1	8:59	..	No sample, diff. tak. tube			.
2	9:14	5	Tr. solids mostly	5.0	...	3.0
3	9:29	5	0.4 down l. f. liq. tur. white	6.0	0.0	4.5
4	9:44	5	0.8 down f. f. liq. f. tur. white	12.0	2.0	4.5
5	9:59	8	0.8 down f. f. liq. tur. white	10.0	1.0	5.0
6	10:14	6	0.8 down f. f. liq. sl. turbid	10.0	1.5	5.0
7	10:29	2	Tr. down f. f. liq. clear, colorless	7.0	...	3.0
Lav.	.....	88	No sol. clear, colorless	2.0		

The first and second are the so-called typical types of achylous diarrhea, the second being due to the excessive irritability of the undigested food. Type 3 is the type usually seen with putrefaction in infected gastritis, in gastric carcinoma, and in the gastro-intestinal catarrhs. Type 4 in both forms is seen with the association of the biliary and pancreatic syndrome.

The difficult point for me to establish is, just how far the diarrheas are due simply to secretory loss and how far to infection and to irritation. Only in a certain proportion of cases do small doses of dilute hydrochloric acid correct the condition. In Type 4, hydrochloric acid is without effect, and the substitution of a fat-free or a low fat diet removing irritating fatty acids produces much better results. In Type 3 hydrochloric acid is without effect, in many instances, while in clean-cut cases of Types 1 and 2 it often works magically, but not so magically as I have been lead to believe.

A careful study of these achylia cases reveals many factors at work besides a simple reduction in secretion. In the majority of cases the achylia is secondary. In many there is the vicarious elimination of toxins of extragastric origin. Cultures of the duodenal, pancreatic and biliary secretions are in many instances positive. Not infrequently *Bacillus coli* infections are to be blamed for the trouble, at least, in three cases. Evidences of inflammation of the duodenal mucous membrane can be shown in some instances. A curious paradoxical effect of hydrochloric acid is that very small doses may cure, and overdoses may induce the trouble, the explanation, according to our experiments, being that a small dose delays gastric peristalsis, and a large dose may, by going into the intestinal tract, temporarily induce irritation.

On account of the great number of cases of true achylia without diarrhea that I have seen, it is my belief that in those cases in which it occurs, the probable explanation is that owing to a lack of secretion the small intestinal tract becomes either infected or irritated, in which case rapid peristalsis results in diarrhea. The more pronounced the infection or the irritation, the more pronounced the diarrhea, and the same mechanism that induced achylia may induce hyperirritability of the entire gastro-intestinal tract. This is surely the mechanism in those cases accompanied by frequent mucoid stools. What is the explanation of gastric achylia and gastric hyperperistalsis without diarrhea? The inference to my mind in these cases is, that there has been either a previously existing constipation or that the initial impulse is outweighed by compensatory intestinal digestion. Another point of importance which seems to be lost sight of is the absence of fecal findings of achylia in some bona fide cases of gastric achylia. Here again, in spite of the fact that the specific rôle of gastric digestion is to digest connective tissue, a vicarious digestion occurs in the intestine which leaves in the movement little or no evidence of the gastric achylia. This is the exception rather than the rule, but I have seen some cases in which there are unquestioned evidences of such findings. In other words, there are two broad general groups, a clean-cut achylia and the achylia due to carcinoma, catarrh, gastritis, etc., on the one hand, and over against this group, achylia with a clean-cut diarrhea furnishing evidence alone of perverted gastric function, as contrasted with diarrhea due to a multitude of causes, gastric, hepatic, pancreatic, intestinal. Hydrochloric acid gives the best results in the first group.

The administration of hydrochloric acid in some form is a time honored procedure in the treatment of gastric achylia and in the diarrheas of achylia. Let us see the action of hydrochloric acid in the stomach. Apparently a small amount has little effect on normal digestion, while large excessive amounts, excessive so far as the optimal acidity is concerned, are rapidly neutralized or brought down to optimum by the *verdünnungssaft*, or regurgitant pancreatic secretion. The manner in which hydrochloric acid operates in the achylia stomach may be seen from its use in the following cases:

It is astonishing that in pellagra and in certain forms of purpura there seems to be an achylia, often accompanied by an infected gastritis, which disappears with the gastric infection if the administration of dilute hydrocholic acid is kept up for a sufficiently long time. This is also seen in the subacid infected stomachs of the tuberculous, and especially in those cases of infected diarrhea with achylia. The following method seems to produce good permanent results: Insert the fractional tube and perform lavage, and if need be disinfection; then on the empty stomach introduce at fifteen or thirty minute intervals through the tube from 15 to 20 minims of dilute hydrochloric acid, largely diluted with water, or better still, as I have done, 2 ounces of 0.25 per cent. hydrochloric acid. Keep this up for several hours, and after several treatments (which may be done by the nurse) have the patient eat a full meal, and with the last liquid taken swallow the fractional tube, and then give fractional installations of the 0.25 per cent. artificial acid. A rapid change occurs in many cases, not in all, and in some cases the results in the improvement of appetite and gastric function are remarkable. Another point — in those achylias in which the difficulty in fixing the etiology becomes acute, the administration of parathyroid extract is indicated, on the principle of the stimulatory action of the aparathyroid secretion. I have had two such cases.

TABLE 7.—EXPERIMENTS ON A NORMAL INDIVIDUAL WITH ACHYLIA GASTRICA

21.0	......	250 c.c.
....	......	
14.5	......	
18.0	......	
....	......	
31.0	......	200 c.c.
33.0	......	
....	......	
85.0	......	
87.0	......	

CONCLUSIONS

1. Gastric achylia may be due to a number of different etiologic factors inducing in each instance presumably a different type of the disturbance. Instances of psychic, infected, anemic and ductless gland types are given.

2. Studies on achylia seem to indicate that either the entire cycle of gastric digestion, or only certain phases, are affected, which enables us to make a differentiation in types.

3. Achylia may be found in apparently normal persons, and studies in one such case indicate that there is a secretion formed without enzymes or acidity, but probably possessing other properties which as yet are not clear.

4. Artificially delayed secretion and induced achylia, as well as the normal types observed, were all unaccompanied by diarrhea.

5. The injection of partially digested material, or even irritants, into the duodenum fails to induce diarrhea.

6. In the so-called gastrogenous diarrheas the cause is to be found in an associated condition besides achylia, namely, an enteritis most frequently, or if not an enteritis, it is, in all probability, due to a disappearance of the normal protective barrier of the gastric hydrochloric acid. The lack of the acid alone, however, seems insufficient as an explanation of the cause.

7. Implantation of an intestinal infection, or possibly a common cause, inducing both achylia and enteritis, may be responsible.

8. In only one case was it possible to discover an associated pancreatic disturbance.

9. A method of fractional and continuous administration of hydrochloric acid is given as a new method in the treatment of this condition.

1934 Chestnut Street.

ABSTRACT OF DISCUSSION

Dr. Charles D. Aaron, Detroit: When gastric secretion is deficient the first physiologic derangement that follows is in the chemical transformation of the food; the prime requisite, therefore, is the administration of comminuted food which makes the least demand on gastric digestion. Knowing that gastric juice is the only digestive secretion capable of dissolving raw connective tissue, it is advisable to forbid raw, parboiled or smoked meat. Even with adequate mechanical division, the insoluble connective tissue of such food burdens the intestine with waste material, which may either directly or indirectly prove extremely irritating, with consequent diarrhea. In achylia diarrhea, hydrochloric acid, the stimulator of trypsin secretion, is absent; pancreatic digestion is inadequate and the feces are apt to contain microscopic meat remnants, not connective tissue only. Therefore, meat should be given in restricted quantities. Vegetables and fruit should also be given sparingly, on account of the irritation likely to follow from the cellulose they contain. It is necessary to boil thoroughly all vegetable food.

As to the disturbances from the intestinal indigestion, there is practically only the diarrhea to be considered, the ultimate cause of which is, in all probability, an insufficient digestion of the cellulose. It follows that in diarrhea the dominant principle should be complete elimination of cellulose from the food. According to my experience, the articles of diet which can be ingested with increasingly less and less impunity in this condition are, in the order named, sugar, finest wheat meal, rice meal, arrowroot, grits, zwieback or toast, sago, spaghetti, rice, white bread. Potato starch is always poorly assimilated, and mashed potatoes agree with scarcely any of these patients. The artificial carbohydrates constitute a very suitable article of diet, the starch they contain being more or less dextrinized. As long as putrefaction of the intestinal contents continues, sweet milk is unsuitable and apt to cause diarrhea.

Dr. Albert F. R. Andresen, Brooklyn: At the Brooklyn Hospital we have made fractional examination of gastric contents by the Rehfuss method in about 500 cases of gastro-intestinal disorders. Of these cases, fifty-two showed a true achylia, including eight carcinoma cases. The "false achylias," that is, cases showing no free hydrochloric acid at the three-quarter hour point, but a subsequent rise, numbered twenty-five, so that we should have had nearly 50 per cent. more cases if only the regular single removal at the three-quarter hour interval had been made. Some of these "false" cases showed a free hydrochloric acid index as high as 70 during the latter part of the two-hour period, being really delayed hyperacidities. All true achylias showed a marked hypermotility, the stomach being empty at or before the two-hour point in over 80 per cent. of my cases.

Diarrhea occurred in 24 per cent. of my fifty-two cases, constipation in 67 per cent., regular bowels in 9 per cent. The diarrhea cases were nearly all associated with infections elsewhere, and were probably infectious in origin. I feel that achylia gastrica itself is merely a name given to a symptom of an infection of the gastric mucosa, an endogastritis, as it were, secondary to a focus of infection elsewhere in the body. I found blood in the stomach contents in over 90 per cent. of my cases, and in the stools in 67 per cent. Vomiting occurred in 38 per cent. The loss of weight averaged over 30 pounds.

As for treatment, it is remarkable how quickly the use of dilute hydrochloric acid, even in small doses, will affect certain symptoms, notably the diarrhea and the epigastric pain. I think this effect is distinct from the benefit to be obtained from the other, and perhaps more important, part of the treatment, the dietetic, which has already been so ably discussed. The occasional diarrhea following the feeding of milk can usually be overcome by acidifying the milk—a teaspoonful of dilute hydrochloric acid to a glass of milk, added just before drinking.

Dr. Max Einhorn, New York: A great many physicians think or speak of diarrhea as being associated with achylia, but I always maintain that the larger group of cases is accompanied by constipation. We have those cases also in which diarrhea alternates with constipation, and again a group in which diarrhea is present. Achylia can also exist together with other conditions in organisms which do not manifest any symptoms at all, with the patient in apparent perfect health. In one of my first papers on the subject I mentioned the case of a patient who had had this condition for forty years and did not know he had any stomach trouble, nor did I, and I discovered the achylia only accidentally.

With regard to the division into achylia and spurious achylia, I think those cases in which some secretion appears later are not real achylia but cases of subacidity in which a little ferment is found that ultimately increases. Dr. Rehfuss mentioned that we may have a condition in which no gastric ferments can be detected—no pepsin, no hydrochloric acid—and still there may be something oozing from the mechanism. I would subscribe to that. In fact, I have described such a condition (hydrorrhoea gastrica), finding it principally in instances of cirrhosis of the liver accompanied by pyloric obstruction. I took this to mean that there is too much fluid in the blood vessels and a kind of pressure relief by exudation through the gastric walls. That may be a different type, but I am sure in ordinary achylia there may be something oozing from the mucous membrane, although the glands are not active. This is a matter difficult to decide.

In regard to the treatment, Ewald and a great many other clinicians lay much stress on the value of hydrochloric acid in the treatment of achylia, but personally I do not ascribe so much importance to that medication. In the majority of my patients with true achylia, where there is no secretion, I may give it for a short while, but on the whole they go along for years without a drop of hydrochloric acid, and just as well.

Dr. Louis Lefrak, New York: The term achylia gastrica is a comparatively recent addition to medical nomenclature. Friedenwald, in Osler's "Modern Medicine," gives Einhorn the credit of having been the first to use the term in conditions in which there was an absence of gastric secretion. I believe that, with the exception of secondary achylias, the condition in a majority of cases is simply one of chronic gastritis with atrophy of the secretory glands. This contention is borne out by the following observations made in the gastro-intestinal clinic with which I am connected and, to a lesser extent, in my private practice: It usually occurs in patients over 30; its incidence is almost equal in both sexes; often there is no other evidence of neurasthenia. This opinion is also held by Dr. Cheney in his paper published in The Journal, May 19, 1917.

I believe if we had a clearer conception of its pathology, achylia gastrica would be classed as a symptom of chronic gastritis instead of a clinical entity; that is, as an organic disease instead of a functional disease. It can readily be seen that if this statement has any value it must affect the treatment considerably.

Dr. Seymour Basch, New York: Achylia gastrica has always been one of the unsolved problems in gastro-enterology and I fear it will remain so for some time. This is illustrated by the fact that patients who come to us for other conditions, feeling well and looking well, on analysis are discovered to have an absence of hydrochloric acid. On the other hand, we have patients coming to us with all the clinical signs, often showing associated diarrhea with loss of weight, etc., and they are treated for a while and then leave our hands; years afterward we find that they are well without any treatment whatever. There are deeper problems than those which appear on the surface. One has been brought out and solved by Dr. Rehfuss in dividing achylia into two groups—psychic and chemical. I think that is an important addition. Another point which will have to be solved is with reference to the protective fluids of the stomach in achylia. To illustrate: In hyperacidity we have antipepsin. Perhaps there is some protective ferment or fluid which protects the patients in an unknown way. It is only by definite study that we will be enabled to solve some of these problems.

The clinical value of achylia studies comes out in the differentiation between true achylia and achylia which is associated with other conditions such as carcinoma, or achylia as a reflex condition, etc., where we cannot talk of achylia merely as a clinical entity, but as a complication, as Dr. Rehfuss has said. I failed to hear any mention made in this differentiation between true achylia and achylia associated with neoplasms. Some years ago Dr. Steel tabulated a number of cases and found that in patients with chronic appendicitis, where undigested meat had been found in the stools, the intestinal condition cleared up entirely after operation. I myself have seen a case of achylia associated with hernia in which, also, the achylia cleared up after operation.

Another form, which is rare and often overlooked, has been pointed out, and that is the achylia associated with benign tumors of the stomach. We are apt to think that this is infrequent, but investigation will show that it is not as infrequent as we believe.

Dr. J. W. Weinstein, New York: Dr. Rehfuss omitted to point out that achylia gastrica is often not achylia gastrica, but is often chronic atrophic gastritis; it is often a carcinoma of the stomach; in the more exceptional cases, perhaps, achylia gastrica has a neurotic basis; and then there is achylia gastrica as such.

Dr. Rehfuss spoke of spurious achylia. I find that spurious achylia is very common in the practice of those whose experience is limited. Of course, that remark does not refer to Dr. Rehfuss, whose experience is extensive. I find that my assistants at the clinic, before they have had a large experience, meet with a large number of cases of achylia, but that after their experience has been augmented, the number of achylia cases becomes much smaller. What is the reason? It is this: There is a certain time only when stomach contents should be extracted. I am not speaking of the fractional method which Dr. Rehfuss is using, but that method which the majority of the profession is using. It is necessary to take out the stomach contents at the height of digestion; for the ordinary test meal it is fifty minutes. It is also necessary that the patient take a full meal, because if the patient takes but one half or one quarter of the meal, one is likely to get achylia, since at the end of digestion the secretion declines. Moreover, we have other factors to consider—the secretion of the saliva which neutralizes the acid, and also regurgitation of intestinal juice.

As to the treatment, I agree with Dr. Einhorn that treatment by means of acid is not very successful. It is true that in some cases it is very successful, and it is worth while in every case to give the patient some hydrochloric acid. I make it my rule always, however, to tell patients that this is only an experiment, that it may decidedly disagree with them, for it is very unpleasant after going through tests and examinations and giving them diet and medication to hear patients say that they feel much worse than they ever felt before. It is unquestionably common to hear this from patients if hydrochloric acid is administered. I find it is especially contraindicated and not tolerated in those cases in which there is true achylia, where there is no secretion at all. It seems that the mucous membrane acquires a hyperesthesia toward hydrochloric acid, and they feel worse than ever if it is administered in these cases.

Dr. I. O. Palefski, New York: I agree with Dr. Einhorn that the so-called "spurious achylia" mentioned by Dr. Rehfuss in his paper is probably one of the forms of subacidity which tardily respond to stimulation by an Ewald test meal. The presence or absence of mucus should serve as a basis of differentiation between these conditions and achylia. The trained eye will readily recognize the existence of achylia by mere inspection of the characteristic two-layer test meal, the rapidly settling lower layer consisting of the undigested food and the superimposed, clear, colorless liquid layer, devoid of mucus and free acid. In pyloric regurgitation caused by transient relaxation of the pylorus, the regurgitated alkaline duodenal contents will not only neutralize the acids but will also dissolve the mucus in the gastric contents. It is impossible, therefore, to differentiate between this condition and achylia unless the examination be prolonged, as Dr. Rehfuss did, or, even better, be repeated on the following day, when normal gastric findings may be obtained.

I rely on clinical observation in declaring that the association of achylia and chronic pancreatitis is not an infrequent occurrence. This should be suspected in achylia with a history of loss of weight and the presence of anemia. Dr. Aaron justly emphasized the value of Schmidt's functional test diet as a control of pancreatic digestive power in achylia. Owing to the disturbing elements present in the examination of feces, however, the quantitative analysis of the pancreatic enzymes in the fresh duodenal contents is preferable.

Clinically, one readily observes the beneficial effects of hydrochloric acid in achylia. This I am inclined to attribute, in no small degree, to its controling effect on the pylorus. The stomach empties rapidly in achylia, due to the relaxation of the pylorus. This allows insufficiently liquefied and improperly subdivided food to enter the intestines, which serves as an intestinal irritant and causes abdominal cramps and diarrhea. Conversely, the administration of hydrochloric acid increases the tonicity of the pylorus, thus prolonging the stay of the ingested food in the stomach, where it undergoes a more thorough subdivision prior to its entrance into the intestines.

Dr. Harris Weinstein, New York: I have no doubt that in time Dr. Rehfuss may clear up various etiologic factors of achylia. We know that achylia may be either functional or organic. Functional achylia appears in conditions in which all the functions of the system are more or less depressed, as in chronic infectious diseases, anemias, particularly pernicious anemia, circulatory disturbances, nephritis, etc. In tuberculosis we find that the disease induces more or less progressive reduction in both the motor and secretory functions of the stomach. Dr. Rehfuss analyzes these conditions, and he may be able to throw more light on them in time, particularly as to the effect of the hormonopoietic system on the nervous system and its resulting effect on the secretory condition of the stomach.

As to the effect of hydrochloric acid in achylia, nobody believes that a small quantity, or even large quantities, of hydrochloric acid can have any telling effect on digestion. I do not believe anybody gives it with that aim. We give it as an activator of the pancreatic pro-enzymes, and in this manner it probably takes the strain off the intestines in so far as it causes better digestion in the intestine. Achylia may run along (in fact, 40 per cent. of the cases do run along) with no symptoms at all, and achylia, if it is not due to chronic gastritis or a malignant condition of the stomach, does not become evident unless pancreatic digestion breaks down. Dr. Rehfuss injected some irritating substance into the duodenum and did not get any diarrhea. We must not forget that achylia does not mean the introduction of undigested food into the intestine one, two or three times; it means that this has been going on for years, and sooner or later the mucosa will become irritated and enterocolitis will result.

Dr. B. B. Vincent Lyon, Philadelphia: In my opinion the greatest contribution that Dr. Rehfuss has made is the differentiation between true chemical achylia and spurious achylia. I do not believe it is possible for us to determine cases of spurious achylia by any other than the fractional method. It is fallacious to select any single point of time for test meal extraction—be it fifty, sixty or seventy-five minutes—and limit the classification of achylia as determined by that one point. There is no doubt that in true chemical achylia we are fundamentally dealing with a progressive atrophy of the mucous membrane, and this atrophy is probably complete, inasmuch as few of us have seen the return of true gastric secretion. In some of the cases there has been a moderate and slow increase in the return of the juices, but in such cases we are dealing with an incomplete gastritis in which some cells are still capable of functioning.

The chief differential point to determine is the presence or absence of pro-enzymes. If we can determine the absence of pro-enzymes, we must conclude that we are dealing with gastric cells whose function has been pathologically destroyed.

In the treatment of the achylias it seems to me it is much more important to preserve the efficiency of the pancreatic ferments. If the intestinal digestants fail in compensation, the patient develops diarrhea. If the pancreatic ferments are studied by duodenal intubation, the proportional amounts of pancreatic ferments can be determined by the Crohn method and pancreatic substitution therapy instituted, and this may be very much more important than the administration of hydrochloric acid.

Dr. Martin E. Rehfuss, Philadelphia: I realize that in fifteen minutes allotted to me it was not possible to do justice to the question of achylia gastrica. The question I tried to investigate most was the etiology of these cases. I have a very large number of so-called cases of achylia, but I maintain that careful study by careful methods will show that there is a so-called spurious type, a type in which delayed gastric secretion is frequent. At the hospital we have made a little over 15,000 examinations on all sorts of stomachs and have been able to note the effect of various foodstuffs under normal conditions. I consider this a rather important point from the gastric standpoint. We investigated a great many of these conditions and found various forms of achylia. I have said comparatively nothing regarding the so-called malignant achylia. One can hardly go into the wards of the Jefferson Hospital without finding at least one case, and at times several cases. I am speaking of those cases which are mostly functional. In looking over these cases we find, as Dr. Einhorn has said, that diarrhea when present is secondary and plays a minor rôle. Over 50 per cent. of our patients were constipated, and the remainder was distributed among patients who had attacks of diarrhea and of dietetic intoxication. The point made is that the cases are subject to careful analysis. I have found only one case in which on duodenal intubation there was true insufficiency of the pancreas. I have in my paper a list of the various types of bowel movements, but the interesting thing is that a careful study of the mechanism of the bowel movements will demonstrate that they are very different, depending on the different factors at work.

The question of benign and malignant achylia ought to be taken up. I wrote a paper regarding the protein content and material in the stomach in benign and malignant achylia. In the latter I found that there was a very different curve running throughout the gastric cycle; in other words, the increase of protein was brought out.

Duty of Maintaining Health.—Keeping healthy is a part of doing "your bit."—Connecticut *Health Bulletin.*

VESICAL DIVERTICULUM

REPORT OF TWO CASES, WITH REMARKS ON OPERATIVE TECHNIC *

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Vesical diverticula represent exaggerated sacculations of the mucous membrane, connected with the general bladder cavity by an opening of variable size. Some writers have expressed the belief that practically all cases are congenital, but latterly there has been a reaction from this position, with a tendency to ascribe most cases to acquired conditions (Lower[1]), the result of obstruction located mainly at the vesical neck.

In the two cases reported herewith the causative relation between obstruction at the vesical neck and the diverticula was plainly shown in the well defined ring of fibrous tissue that surrounded the neck of each bladder; while in the few other cases observed by us, but without being brought to operation, an obstruction was always demonstrable, so that our own inclination is to share belief in the predominance of acquired over the congenital origin of this malady.

Englisch[2] based a differentiation between congenital and acquired diverticula on the question as to whether their walls possessed muscular bands or not, asserting that those with muscular tissue were congenital; those without were acquired.

This classification, however, has been difficult of proof and has not been supported by all writers. Thomas,[3] in reviewing twenty cases of diverticulum observed in the Mayo Clinic, asserts that they were incapable of making such a classification. But whether congenital or acquired, it is probable that some obstruction has been present at some time in every case, either during intra-uterine life or subsequently.

Rokitansky's[4] declaration that diverticula were found only in bladders having hypertrophied walls was not borne out by the two cases herewith reported. In one the bladder wall was as thin as paper and broke down precipitately under gentle manipulation.

Diverticula are single or multiple, and vary considerably in their size as compared with the bladder cavity. Sometimes they are as large as, or even larger than, the bladder cavity.

Whether congenital or acquired, the walls of diverticula are supplied with so little muscular structure that they are inert and incapable of contributing to the evacuation of the organ. Urine contained in them tends to stagnate and undergo infection and decomposition, becoming then highly irritating and a frequent source of urinary sepsis, with chills, fever and other sequels.

No form of treatment has been able to supply this deficiency of muscular activity or contractility to the sacculation and hence, until a definite plan for their removal was finally evolved, operative treatment was a failure. Dilating or incising their orifice, for increasing the ease of communication between the main cavity and the accessory one, failed for the same reason.

Marked developments in respect to both diagnosis and treatment within the past half-dozen years have inspired the greatly added interest, as well as the more frequent recognition of this very imposing and portentous malady. Previous to 1912, although recognized in the abstract, vesical diverticulum was looked on in the light of a surgical curiosity, rather than a pathologic condition subject to remedial measures. Since then conditions have materially changed, and many persons the subject of diverticula and their attendant evils have been reclaimed from a very miserable existence to comfortable living. This satisfactory development has been due to progress in the technic of diagnosis and of operative therapy.

In addition to wider recognition of diverticula through the better and more universal practice of cystoscopy latterly in vogue, the taking of roentgenograms of the suspected bladder filled with a fluid opaque to the roentgen ray has proved a wonderful service. This has permitted ready identification of the sacculation, its location, size and number, if multiple, and has afforded evidence on which to base a conclusion as to the advisability and mode of surgical attack.

But more important still has been the simplifying of the surgical operative procedure by adopting measures to convert the more or less elusive and intangible diverticulum into a solid tumor by inserting into it the rubber elastic bag of Lerche,[5] or packing the sack with strips of gauze, as suggested by Cabot[6] and popularized by Lower in his several very valuable contributions on the subject. This feature of the technic has proved so valuable that much of the advance in this work must be ascribed to it.

The ureter, occasionally injured or severed during the operation, has been protected or repaired, as the case might be, by measures promoting that objective, such as preliminary ureteral catheterization, as advised by Beer, or the use of valve-flap transplantation, as suggested by Young.

Experience has proved the propriety of keeping the operation extraperitoneal, stripping the peritoneal membrane from the bladder wall as far as necessary to give access to the sac; and of sewing up the bladder wall tightly, using a retained catheter in the urethra for urinary drainage. It has been the habit of operators to drain the pocket from which the diverticulum has been removed by a rubber tube or cigaret drain passed through the abdominal wound that was made to gain access to the bladder; but we have used with entire satisfaction, and it is believed with distinct advantage, a stab-wound cigaret drain into the extraperitoneal space, thus avoiding contact with the main wound edges and promoting their early and complete union.

The indwelling urethral catheter is preferred by us over the method of repeated catheterization for emptying the bladder following the operation. There are few patients who cannot easily and comfortably wear a soft rubber catheter for this purpose for the few days required to secure union of the wound area, notwithstanding a widely prevalent impression to the contrary. Many patients can wear urethral catheters for weeks or months, without serious discomfort.

This measure is often one of the most efficient for preparing the patient for operation, affording gratify-

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Lower, W. E.: Diverticula of the Urinary Bladder, The Journal A. M. A., Dec. 5, 1914, p. 2015; Cleveland Med. Jour., January, 1914.

[2] Englisch: Arch. f. klin. Chir., 1904, 73, 1.

[3] Thomas: Surg., Gynec. and Obst., October, 1916.

[4] Rokitansky: Manual of Pathological Anatomy, 1855, 3, 48.

[5] Lerche: Ann. Surg., 1912, 55, 285.

[6] Cabot: Am. Assn. Gen.-Urin. Surgeons, 1912.

ing if temporary relief from retention and sepsis, and contributing much to the restoration of functional activity to the organs most involved.

It goes without saying that all preparatory measures now recognized as essential to the attainment of success in major genito-urinary operations should be provided.

The steps of diverticulum resection as carried out by us are as follows:

1. The ureter of the affected side is catheterized, the bladder being left filled with fluid and a rubber catheter in the bladder.
2. Epicystotomy is done, the bladder wall being attached to the abdominal wall on each side, but especially on the side opposite the diverticulum.
3. The diverticulum is packed with gauze.
4. The peritoneum is stripped off.
5. If the ureter has been cut, its end is opened and it is drawn through a button-hole into the bladder and attached.
6. The hole in the bladder wall from which the diverticulum was excised is sewed up. The stitches are reinforced, chromic catgut being employed.
7. Operation is performed on the prostate or neck of the bladder if necessary.
8. Stab wound drainage is used, with a cigaret drain.
9. The retained urethral catheter is inserted.
10. The anterior wall of the bladder is sutured and closed completely, with catgut.
11. The abdominal wound is sutured with catgut and silkworm gut.

The clinical pictures, as well as the method of securing permanent relief, are fairly well illustrated in the histories of two cases herewith reported.

REPORT OF CASES

Case 1.—A man, aged 51, railroad engineer, American, married, had no history of any venereal diseases. The patient's health had been good up to the beginning of the present illness, which occurred Nov. 4, 1916. Up to this time he had been in the habit of urinating only four or five times daily and did not void at night. November 4, without recognizable cause, he began to have severe burning with urination and undue frequency. There was no blood in the urine at that time, but with a continuance of the irritative symptoms he noticed that blood appeared ten days later (about November 14). The blood was mixed with the urine and did not precede or follow the act. With remissions there was a continuation of these symptoms until his arrival at the Frisco Hospital, in the service of Dr. G. W. Cale, Nov. 25, 1916. His general condition then seemed very poor; he was thin and looked run down. There was excessive frequency of urination day and night, together with much pain each time; both urines were cloudy with pus and blood appearing microscopically. There was colon bacillus infection. Cystoscopy, November 29, showed widely diffused cystitis of marked intensity. The well defined orifice of a diverticulum was located in the left posterolateral segment of the bladder, anterior (distal) to the ureteral ridge. The orifice appeared about the size of a dime. The bottom of the diverticulum was not visible. The ureter catheter inserted into it reappeared at the orifice after 3 or 4 inches of catheter were used. No stone was observed. The ureteral orifice was not visible on this side. Roentgenograms of the bladder filled with thorium solution showed a definite sacculation about the size of an apple, posteriorly and to the left of the bladder, attached to it by a narrow neck.

Operation was performed Dec. 9, 1916, with the assistance of Drs. Moore, Woolsey and Smith. Anesthesia was given by Dr. Wood. This operation followed ten days after preparatory treatment, consisting of frequent irrigations through a retained catheter, rest, internal antisepsis, etc. With the bladder fairly well filled and the patient in the semi-Trendelenberg posture, an incision was made in the midline of the abdomen until the anterior wall of the bladder was reached. The peritoneum was stripped from the bladder, partly by a dissection with scissors but more by the gauze-covered finger. It was noticed that the whole anterior wall of the bladder, particularly toward the left, was very thin, at some parts as thin as paper; which explained the fact that when an attempt was made to place stay-sutures in the anterior wall, the wall suddenly broke down and opened up the bladder cavity. After the field had been dried, several catgut sutures were placed in the right wall of the bladder, attaching it to the abdominal wall on that side. The left wall was controlled by a stay-suture left loose and was serviceable later as a guide. Inspection revealed a spacious bladder cavity with ureteral openings plainly visible; and slightly anterior to the left ureteral opening could be seen the orifice of the diverticulum, corresponding to the observation made by cystoscopy. Narrow strips of gauze were then stuffed into the diverticulum until it was quite full. This maneuver was facilitated by grasping the margins of the orifice with forceps and holding them well up, thus permitting a much larger quantity of gauze to be inserted than would otherwise have been the case. The diverticulum was in this way converted into a solid tumor about the size of a pear, outside of the bladder. The peritoneum was then stripped from the left bladder wall and from the tumor. The earlier part of this maneuver was easy, but became more difficult later, as the diverticulum was situated so low down in the pelvis and behind the bladder that it became less accessible. Part of the separation had to be made with scissors. The pedicle was found to be as thick as a finger. With one forefinger through this neck for guidance it was excised with scissors after the tumor had been well lifted out of the cavity. Hot moist gauze controlled the rather rapid oozing of blood into the pocket from which the tumor had been removed. Before closing the bladder it was observed that a dense, fibrous ring surrounded the neck of the bladder and presented positive and marked obstruction to the outflow of the urine. This ring was strongly dilated with a uterine dilator until it presented no further obstruction. Evidently this had had a marked bearing on the development of the diverticulum. The wound in the bladder wall was closed with several layers of chromatized catgut; reinforced until the closure seemed satisfactory.

At this point effort was made again to identify the left ureteral orifice which had been disturbed by the operative manipulations, but it could not be identified. However, no leakage of urine could be seen outside of the bladder on that side and the discharge of the urine into the bladder seemed regular. From this observation it appeared highly desirable to catheterize the ureter of the side involved previous to beginning the operation so that it might be identified at any step. This was carried out with complete satisfaction at another, subsequent operation. The anterior wound of access through the bladder wall was closed tightly with a continuous chain-stitch of catgut, without drainage. Two cigaret drains of large size were placed in the pocket to the left of the bladder and were brought out of a stab wound in the left inguinal region, serving the good purpose of providing ample drainage without interfering with the union of the abdominal wound. The muscles of the abdominal wound were united with catgut; skin with silkworm-gut without drainage. A retention catheter, size 20 French, was left in the urethra. Considerable drainage of bloody serum and urine escaped from the stab wound in the next two or three days, due largely to the fact that the catheter became slightly displaced, but on replacing it and applying the Bremerman suction drainage apparatus this impediment was relieved and the operative field remained dry thereafter. No bleeding nor any objectionable symptoms occurred. The only rise in temperature at any time was on the third day, when it was 100 F.; the remainder of the time it was normal. No drainage occurred from the wound after the fifth day; primary union occurred throughout. In a week the patient was able to urinate voluntarily, completely emptying the bladder.

December 15 (the sixth postoperative day), the wound was dry, all sutures were removed and urination was normal and not attended with residuum. No measures were necessary thereafter.

Case 2.—An American manufacturer, aged 39, at the time of his first visit, July 21, 1913, was referred by Dr. J. T. Barbee. The earliest memories of childhood of the patient were connected with slow, difficult, prolonged urination, frequently repeated. He was never able to urinate promptly and satisfactorily as compared with other children of his acquaintance. This difficulty persisted throughout his younger life, and about fifteen years ago there was an increase in the various symptoms, including painful urination, infection, intense clouding of the urine, constant desire, etc. There had been no bloody urine that the patient had noted except after using the catheter, which he had begun about a month previously and had used daily since. The white sediment in the urine he had noticed for the previous ten years. He had found a glassful of urine left over after each effort of voluntary urination. His general health had been poor; he has always been thin and anemic. There was never a definite investigation of his condition prior to March, 1913. At that time Dr. Barbee examined and recognized obstruction at the vesical neck and prescribed irrigations to relieve the infection, together with the use of sounds. This produced only partial success so that the patient was referred to us, July 21, 1913. Neither palpation by rectum nor cystoscopy disclosed any evidence of prostatic enlargement or outgrowth. On the contrary, the prostate seemed unduly small. There was, however, a large, relaxed, atonic bladder holding from 25 to 35 ounces of urine without difficulty; and through the cystoscope was observed at this time the opening of a diverticulum located in the posterior wall of the bladder, low down. Although no especial resistance to the dilator was encountered on the introduction of this instrument, the above evidence, together with the history, led to the conclusion that there was contracture at the vesical neck and a diverticulum connected with the bladder was noted. Both ureters were catheterized, and healthy urine was drawn from each.

At this time the operative technic for diverticula had not been worked out to the degree of satisfaction since attained, so that it was concluded to omit operative measures on it and apply those for the purpose of removing the obstruction at the neck. At this time the usual quantity of residual urine following voluntary urination was about 28 ounces. Progressively increasing dilation of the neck by means of the Kollmann dilator improved the patient's ability to urinate and reduced the quantity of residuum to about 8 ounces within a month. It did not relieve the infection or relieve him from the recurrence of septic urinary chills and fever that had been one of his most disagreeable symptoms. After a period of this form of treatments given at home the patient returned, Jan. 13, 1914, and was found again to have 20 ounces residuum. Then a perineal urethrotomy was made; a finger introduced through the perineal wound revealed a definite ring of fibrous tissue that surrounded the neck of the bladder and made positive resistance. This was at first stretched widely with the uterine dilator; but being still appreciable it was incised with the probe-pointed bistoury until free access was obtained. Drainage by means of a urethral catheter was secured.

Great improvement ensued, but still there was a tendency later to recurrence, which was treated with dilatings. The residuum was then reduced to 2 or 3 ounces, less than ever before. After the patient went home the dilatings were continued even up to 45 F., but the benefit was not maintained. Frequent chills and fever and other manifestations of urinary sepsis recurred, and the patient's health continued below par so that when he returned in January, 1917, we concluded it best to go at once to the removal of the diverticulum, which was then believed to be the cause of the continued disturbance.

Cystoscopy again confirmed the presence of the diverticulum, the orifice of which seemed to be even larger than it had been in former years. The operation was done, Jan. 20, 1917; ether was administered by Dr. Clapsaddle; Drs. Moore and Woolsey assisted. The same method as in the case previously reported was carried out. About ten yards of gauze in strips was packed into the diverticulum, the peritoneum was stripped from the bladder, diverticulum, the latter being very inconveniently located under the base of the bladder. This, however, did not prevent its enucleation, after which it was resected. The opening was sutured tightly with chromic catgut. Before closure of the anterior vesical wound, the fibrous tissue surrounding the neck of the bladder was again demonstrated with the finger, though it was not nearly so tight as formerly. It was widely stretched with the uterine dilator until it offered no further resistance. The bladder wound was then sewed; a stab wound to the left of the bladder was made for draining the cavity from which the diverticulum had been removed. The bladder wound and abdominal wound were closed without drainage.

Following the operation there was scarcely any bleeding; there was good drainage and no systemic reaction. January 25, the patient was in excellent condition. There had been only a small amount of drainage from the stab-wound. The cigaret drain was then removed. The retained catheter was removed from the urethra, January 31, and the patient's ability to urinate freely and to empty the bladder completely was then demonstrated. The patient could not remember ever having been able to urinate with such completeness and satisfaction. This practically completed convalescence, and he went home in good condition.

THE RESULTS OF TREATMENT OF BLADDER TUMORS *

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The treatment of bladder tumors prior to 1910 was in almost all cases a surgical one, with an attempt at partial or complete removal of the growth. Whether the tumor was benign or malignant, operative procedure offered the only hope of cure or alleviation. The brilliant results obtained by Nitze in his endovesical treatment of bladder tumors were not duplicated by other urologists, as the skill necessary for the employment of his methods was not perfected. The introduction of fulguration by Beer and later the employment of radium are two procedures which have served radically to change our ideas, and have consequently affected our attitude in the selection of the proper treatment for any individual case.

When fulguration was first employed, the results obtained by different surgeons were apparently immeasurably superior to the results secured by old operative methods. It began gradually to be realized, however, that all vesical tumors were not amenable to this form of treatment, and that while certain tumors disappeared with surprising rapidity, others responded only after long and vigorous applications, while others again were not affected in the slightest degree.

In order to secure an explanation of the difference in the response to treatment, we have made a study of the pathology of the different tumors and tried to correlate the different types and their response or resistance to fulguration. The results of this study have shown that the tumors which respond most readily to fulguration belong to the benign papilloma type, while those which are not affected, or are often stimulated in their growth, are histologically papillary carcinoma. There is, however, an intermediate group of tumors, the malignant papilloma, which varies in its response to this treatment, some responding almost as readily as the purely benign type, while others approach in their resistance the true papillary carcinoma. The differentiation between the malignant papilloma and the papillary carcinoma may, in many cases, be extremely difficult, and, notwithstanding the

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histologic picture, the final diagnosis may be reached purely by the response to fulguration or radium. The employment of radium within the last few years has necessitated still further studies regarding the type of tumor in which this agent has proved valuable. As with fulguration, it has been learned by experience that certain tumors disappear under its influence, while others apparently are not affected by it.

Much confusion has always existed concerning the nature and pathology of bladder tumors. Most of this confusion exists as regards the papillary tumors which are the commonest of vesical neoplasms. Until a definite classification is adopted and a specific nomenclature employed, these inaccuracies will continue. For example, the use of the term "cancer" for the papillomatous, noninfiltrating types of tumor, even though there be histologically malignant changes present in the epithelium, is confusing, because experience has shown definitely that certain therapeutic measures suitable for one are wholly inadequate for the other. Frequently the surgeon in reporting the results of a given form of treatment for cancer may include in his series cases of malignant papilloma. The result of such a report leads to erroneous conclusions. A classification which has proved at least a satisfactory working basis is the following, because it is possible to correlate the histologic and clinical picture with the response to different therapeutic agents.

The papillary tumors may be classified as benign papilloma, malignant papilloma and papillary carcinoma. Papilloma is a name which common usage has popularized in medical literature, and it is used to denote a group of tumors having certain gross characteristics. The term "papilloma" has come to imply a pedunculated, papillary form of villous tumor springing from the mucous membrane of the bladder and being essentially composed of a branching connective tissue framework, lined by epithelium in several or many layers. Statistics prove conclusively that papilloma is by far the most frequent tumor of the bladder, and when it is further considered that practically all the papillary carcinomas represent an advanced malignant degeneration of tumors which in their early stages were papillomas, the preponderance of this type of vesical neoplasm can be appreciated.

The gross appearance of papillomas varies considerably, and there is no definite characteristic which will differentiate the benign from the malignant. In most instances it is impossible from the gross appearance to decide the character of the growth, so closely in general appearance do the benign and malignant papillomas resemble each other. The pedicle in the malignant papilloma is freely movable over the underlying mucosa, and there may be nothing in its appearance to reveal its malignant character. In the vast majority of cases, the differentiation between the benign and malignant papillomas can be made only by the most careful microscopic study, and it sometimes necessitates the examination of sections from various portions of the tumor. In the benign papilloma, the connective tissue axis is lined by an epithelium which has a palisade arrangement at the base and above this many layers of oval longtailed cells which are uniform in size, shape and staining characteristics. Toward the surface the cells become flattened, and the most superficial are similar to the epithelium of the normal bladder mucosa. In the malignant, the arrangement of the epithelium is changed, and instead of being in regular, uniform layers, it is disordered. The individual cells are very irregular in size and shape, and take the stain with varying degrees of intensity. These variations from normal are even more evident in the nuclei. At times, owing to the lawless growth of the epithelium, the papillae fuse so that the regular papillary arrangement is destroyed. Not infrequently in the same field, papillae may be seen undergoing various degrees of alteration. In one portion the epithelium may have all the characteristics of the benign papilloma, but close by may be papillae in which epithelial changes characteristic of malignant papilloma are very evident.

The term "malignant papilloma" should be reserved for those tumors in which the malignant changes are confined to the epithelium, and in which there is no infiltration of the epithelium into the connective tissue framework. When the epithelium breaks through its basement membrane and begins to invade the axis of the papilla or its main stalk, it no longer should be considered a papilloma, but a papillary carcinoma.

In order to arrive at some conclusion as to what may be expected from the different forms of treatment, we have included in our studies only those cases which have been seen since January, 1911. This makes it possible to compare our results of the last six years in which recent procedures have been employed with the results obtained prior to this time when operative measures alone were used. From Jan. 1, 1911, at which time fulguration began to be employed for the first time in our clinic, until April 1, 1917, 145 cases of bladder tumor have been observed. Of these there were 64 cases of papilloma, 74 of papillary carcinoma, 3 of adenocarcinoma, 1 of colloid carcinoma, 1 of cystic adenoma and 2 of multiple vesical polyps.

THE TREATMENT OF PAPILLOMAS

Of the sixty-five cases of papilloma in our series, thirty-four were treated by fulguration alone, the Oudin or unipolar current being almost exclusively used. In five of these, previous suprapubic excision had been performed and the tumors represented recurrences. In twenty-six of the thirty-four cases treated by fulguration, subsequent cystoscopic examinations were carried out, and in ten cases, or 29 per cent., recurrences were noted. In seven cases the recurrence was present in less than one year, in one case after one year, in one case after one and one-half years and in one case after two years. In three of these cases the recurrence was in the region of the original tumor, and in the remaining seven they were on portions of the bladder wall distant from the site of the primary tumor. Of the sixteen cases in which there was no recurrence, one patient was well for six years, one for five years, one for four years, three patients for three years, three for two years, two for one year and five for less than one year.

The recurrent tumors, with one exception, have all responded to fulguration like the original tumor. This one exception is of extreme interest.

CASE 1.—This patient had a papilloma several centimeters in diameter just back of the ureteral orifice, which disappeared rapidly under fulguration. For several months after the disappearance of the tumor, the mucous membrane in the tumor-bearing area appeared perfectly healthy. Shortly after, cystoscopy revealed a peculiar reddening and slight bulging of the mucous membrane in this region without ulceration or definite tumor formation. At first this was thought to be a localized inflammatory area. The process, however, seemed to spread, and a piece removed by the cystoscopic rongeur revealed an infiltrating carcinoma with the mucosa covering it practically intact. This is undoubtedly a case in which cancer cells from the malignant papilloma had metastasized into the deep bladder wall and there continued to grow after the original tumor had completely disappeared. This case really should be considered as a metastasis rather than a recurrence.

One other case is deserving of special mention because the recurrences continued over so long a period.

Case 2.—This patient, aged 52, was seen in February, 1912, with a large papillomatous tumor covering the left lateral wall and with several smaller tumors around the vesical orifice. The small tumors readily disappeared, but the large tumor responded only after months of vigorous and intense fulguration. Within a few months after the last vestige of the original tumor had disappeared, several recurrences the size of a pinhead were seen in widely separated portions of the bladder. These responded readily to fulguration. Since then the patient has been examined with the cystoscope on an average of about once a month, and practically at every examination small papillomas are found. During the last five years, probably several hundred tumors have been removed in this way. At the present time, the tendency to recurrence is just as active as it was five years ago, but it has been possible by watchful and persistent care to destroy the recurrence as fast as they form.

Treatment by Radium and Fulguration.—During the past two years, for papillomatous tumors which have shown histologic changes characteristic of the malignant papilloma or which were unusually resistant to fulguration, radium has been employed in combination with fulguration. Depending on the size of the tumor, varying amounts of radium have been employed, ranging from 200 to 1,000 milligram hours. Of the eighteen cases treated by this combination, in seven the tumors were multiple. Two patients discontinued treatment before the tumors had been removed. In the remaining sixteen cases, the tumors were completely destroyed. In all but one of these, subsequent cystoscopic examinations have been made, and in four cases, or 27 per cent., recurrences were found. In all four cases the recurrences were present in less than one year. The remaining eleven cases were free from recurrence for periods of time as follows: three for two years, four for one year, three for six months, and one for three months.

The following case illustrates the specific rôle which radium seems to play in rendering malignant papillomas, which have proved resistant to fulguration, amenable to this form of treatment.

Case 3.—A man, aged 75, had a papillomatous tumor 3 cm. in diameter just back of the trigon. Cystoscopically the tumor was pedunculated, with short stubby papillae. Microscopic examination of a piece of tissue removed showed the characteristic changes of malignant papilloma. The tumor was apparently in no way different, either cystoscopically or microscopically, from other tumors in which fulguration is effective. The tumor was fulgurated over a period of six months at biweekly intervals, and at the end of this time it was about three-fourths its original size. In the beginning of the treatment, the tumor decreased definitely but slowly, and finally it seemed to remain stationary in size. Frequently a fulguration sufficiently vigorous to coagulate apparently the entire tumor mass was employed, but examination two weeks later, on the separation of the slough, would reveal the tumor apparently unchanged. Finally radium was applied directly to the surface of the tumor, both the beta and gamma rays being employed. These radiations totaled 600 milligram-hours and were carried out over a period of eight weeks, 103 mg. of radium being applied for one hour at approximately weekly intervals. At the conclusion of this radiation, the tumor showed no evident changes either in size or appearance. The tumor was now vigorously fulgurated, and disappeared completely after one treatment. The patient died six months later of pneumonia. Necropsy revealed no recurrence in the bladder and there were no metastases present.

Up to the present time there have been six other cases responding only slightly to fulguration which, after varying amounts of radium, have yielded readily to the high-frequency treatment. All of these cases were of the malignant papilloma type.

Another case of considerable interest is the following:

Case 4.—A man, aged 50, had two papillomatous masses on the anterior bladder wall which had received a large amount of fulguration elsewhere without any apparent improvement. The resistance to this type of treatment was confirmed by us. A course of radium was then employed which was followed subsequently by fulguration, the tumors apparently disappearing promptly. Cystoscopy one month later revealed a recurrence in the same area. This was treated in a manner similar to the other tumors, with disappearance. There was noted on cystoscopy after the disappearance of the tumor, in the region formerly occupied by it, a small shallow cuplike depression in the bladder wall, resembling a cellule. Examination three months later revealed another recurrence. The tumor occupied so ideal a position for resection that operation was decided on. When the bladder was exposed, a diverticulum was found at the point of the insertion of the urachus. This was filled with tumor, which readily explained the recurrences. The diverticulum communicated with the bladder by a narrow orifice and the tumors previously destroyed were implantations of the tumor concealed in the diverticulum.

Treatment with Radium.—In three cases the papillomas were treated with radium alone, and in all three cases the tumors treated disappeared under the influence of radium. One of these cases is of particular interest in that the patient had numerous malignant papillomas around the vesical orifice and a localized infiltrating papillary carcinoma involving the right ureteral orifice. Any operative procedure, short of complete cystectomy and prostatectomy, would have been useless. It was possible, however, to destroy the papillomas by means of radium within a few weeks, after which a resection of the papillary carcinoma, with transplantation of the ureter, was successfully carried out. The papillary carcinoma and other forms of infiltrating malignant tumor, in our experience, as will be considered later, have not responded to this form of treatment, and resection was consequently indicated. This case probably illustrates very well the possibilities of a combination of treatments for securing results practically impossible of attainment by any one procedure.

Technic of Radium Applications.—In this connection it may be well to outline briefly the technic we have followed in the application of radium to bladder tumors. The treatment in practically all cases has been carried out with 103.7 mg. of radium element. In the majority of the treatments a fenestrated brass capsule has been employed and both the beta and gamma rays utilized. In other cases, however, the radium has been contained in a capsule of platinum 1.5 mm. in thickness, a screenage sufficient to filter out practically all of the irritating beta rays. The capsule containing the radium had been introduced into the bladder in the beak of an instrument not unlike the sheath of the irrigating cystoscope. These instruments permit the passage through them of an observation cystoscope by means of which the tumor may be viewed and the radium accurately placed on it. After the radium has been directed against the tumor, the instrument is held in a fixed position by means of a mechanical arm attached to the cystoscopic table. The radiations are usually given throughout the period of an hour at each seance and carried out from one to three times weekly, depending on the tumor and the reaction of the patient to the treatment.

Treatment by Suprapubic Removal.—This procedure was carried out in ten cases. In six of them the tumors were removed by the actual cautery and in four by resection. Of the former there were two recurrences in less than one year, while in the latter no recurrences were noted. It should be stated that in both cases in which recurrences were found the tumors were very extensive and occupied a large portion of the bladder wall. Of the patients treated by removal with the cautery, one has been well six years; one, two years; one, one year, and one for six months. Of those resected, three have been well five years, and one, one year.

PAPILLARY CARCINOMA

In eighteen of the seventy-four cases of papillary carcinoma, the tumors were considered operable, and in all of them radical resections were carried out. In five cases the ureter was transplanted, and in one case both ureters were similarly treated. In these eighteen cases there was only one operative mortality, that being the case in which both ureters were transplanted The death in this case occurred in the third week, being due apparently to pulmonary embolism. It has been possible to secure data concerning all of the eighteen patients. Eight have since died, and of the ten living, one has been well for six years, one for five years, one for four years, and seven for less than one year. It is noteworthy that recurrence in the suprapubic scar, which was a not infrequent sequela in our earlier operation, has not been observed in any of these cases. This is probably due to the greater care which has been exercised in preventing implantations during operation.

In fifty-six cases, or 75 per cent., the papillary carcinomas were so extensive that radical excision was considered impossible. In eleven of our extensive cases fulguration was employed, but aside from symptomatic relief, nothing was accomplished. In a few instances, it was possible to destroy enough of the tumor to give temporary relief from mechanical obstruction, while in certain of the cases, hemorrhage was relieved. In no instance was it possible completely to destroy the tumor.

Treatment by Radium and Fulguration.—In eleven cases a combination of radium and fulguration was used. The radium in every instance was applied directly against the tumor mass, and varying amounts, from a few hundred to several thousand milligram hours of radiation, were given. In the majority of cases both the beta and gamma rays were employed, but in the remaining the radium was heavily screened with sufficient platinum to filter out practically all of the beta rays. The combination of radium and fulguration of this type of case in no instance caused the complete disappearance of the tumor, or, in fact, any marked effect on it. In some cases, however, some symptomatic relief was obtained.

Treatment with Radium.—In thirteen cases with extensive infiltrating carcinoma, radium alone was employed. The results in this series differ in no respect from the cases treated by the combination of radium and fulguration. As in the latter series, a number of cases were relieved symptomatically, but in no case was there complete disappearance of the tumor.

Diagnosis.—The study of our results strongly emphasizes the necessity of early differentiation of the papilloma from the papillary carcinoma, because the endovesical methods at our command have proved to be futile in the treatment of the latter type. On the other hand, these endovesical methods for the treatment of papilloma yield results incomparably superior to any of the more radical procedures. The differentiation of the benign and malignant papilloma, so far as treatment is concerned, is not so essential, for in the majority of the latter variety, fulguration proves most satisfactory. In the small group which proved resistant, the combination of radium and fulguration will accomplish the desired result.

The differentiation between the papillary carcinoma and the malignant papilloma is not always easy, but in the majority of cases cystoscopy, palpation, histologic examination of a portion removed and a consideration of symptoms, either alone or, as is usually the case, in combination, will furnish information sufficient to make an accurate diagnosis.

Cystoscopy.—It is surprising how frequently from cystoscopy alone one is able to distinguish the papilloma from the true carcinoma. While the pedicle of the papilloma is rarely distinctly visible, often the tumor mass can be seen to sway as a whole in the fluid, which indicates its pedunculated character; and at other times it is possible to view slightly beneath the mushroom-like edge of the tumor. It is impossible from the cystoscopic appearance of papillomas to determine whether they are benign or malignant. When, however, the malignant changes are so advanced that infiltration of the bladder wall has occurred, there are certain cystoscopic appearances which nearly always enable one to arrive at a fairly accurate diagnosis. The presence of necrosis in the papillae is indicative of carcinoma, and is usually associated with invasion of the underlying bladder wall. In the earlier stages, when the tumor has just begun to invade the bladder wall, it may not be possible cystoscopically to determine this point; but when the process is at all advanced, the tumor loses its pedunculated character and becomes sessile in type. Frequently, around the margin of the tumor is seen edema, or bullae, which are usually indicative of a cancerous invasion of the bladder wall below. At other times little tumor nodules can be seen beyond the main tumor growth. This again is indicative of cancer. While it is impossible definitely to describe all the appearances which serve to diagnosticate the papillary carcinoma from the malignant papilloma, the cystoscopist of experience is usually able to differentiate them, and it is interesting to note how frequently the cystoscopic diagnosis proves to be correct.

Palpation.—Occasionally, when the bladder is extensively involved with an infiltrating form of growth and the abdominal wall is thin and soft, the hard, irregular mass can be detected. When malignant growths occur on the posterior wall of the bladder, or on the posterior lateral wall, rectal examination frequently gives most valuable information regarding the nature of the growth and its extent, and frequently determines the possibility of complete eradication by operative procedures. When the growth infiltrates the bladder wall, induration can be detected, and the extent of the bladder wall involvement can be more or less accurately mapped out. About 50 per cent. of bladder tumors occur on the posterior bladder wall in a position accessible to the examining finger. Sometimes not only the induration is detected in the bladder wall, but later the seminal vesicles are also involved, and still later the prostate. In rare instances, the growth may extend through the rectum and a rectovesical fistula may result. This complication occurred in three cases in our series. It may be safely said that marked induration of the bladder wall, which is felt through the rectum, is strong evidence of carcinoma. In the female, valuable information regarding the condition of the posterior bladder wall may be obtained by vaginal examination.

EXCISION OF A PIECE OF TUMOR FOR DIAGNOSIS

For a number of years we systematically removed pieces of bladder tumor by means of the Young cystoscopic rongeur for the purpose of histologic examination. The information derived from this method would seem to furnish conclusive evidence of the nature of the tumor, and consequently enable one to select accurately the type of treatment best suited to the tumor in question. Unfortunately, the evidence derived is not always conclusive, because of the fact that the portion removed is not always a safe index of the character of the remainder of the tumor. The piece removed may show no, or very few, malignant changes, while other portions of the tumor may be definitely carcinomatous. When the piece of tumor excised shows, however, definite carcinoma, the employment of radical procedures suitable for the individual case should be adopted without delay, and time should not be lost in the employment of the usual endovesical methods of treatment. The excision of a piece of tissue will also prove of value in differentiating the different types of vesical tumors. It should be noted, however, that the removal of the tissue by this means has been criticized as increasing the risk of metastasis. This has not been our experience, and the information obtained frequently counterbalances the theoretically increased risk of metastasis.

SYMPTOMS

It has also been our experience that when a severe, intractable cystitis is associated with bladder tumor, the tumor has proved practically always to be cancer.

In rare instances, when the cancerous process is very early, it may be impossible to determine this by the usual methods. In these cases it has been our custom to test out, as it were, the nature of the tumor by means of fulguration and radium. If the tumor does not show prompt response to this combination, it can be assumed that it is of a cancerous nature.

METASTASIS

When the possibility of metastasis in a given case is considered, it is again important to know the type of vesical tumor concerned. In our series of sixty-four papillomas, 75 per cent. of which were malignant, four cases of metastasis were noted. In all four cases the tumor was a pedunculated papilloma, which in every instance disappeared completely under fulguration alone, or fulguration and radium combined. In one case, evidences of metastasis did not develop for four years after the removal of the primary tumor, but in the interval a great many recurrences had been destroyed.

Of eighteen papillary carcinomas in which the carcinoma was considered sufficiently well localized to attempt resection, and in which it was possible completely to remove the local growth, seven patients have since died of cancer and one of intercurrent disease. Of those living, only three have been well for a period of more than four years. When the carcinoma is extensive and deeply infiltrates the bladder wall, metastases are usually present. It should be recognized, however, that at times most extensive involvement of the bladder may be present with negative findings at necropsy, so far as metastases are concerned. In three of our cases in which the tumor was so extensive that complete removal seemed impossible, and in which death occurred while under observation, no metastases were demonstrated postmortem.

CONCLUSIONS

The results of our experience in the past six years may be thus summarized: It is essential to determine accurately the type of tumor in a given case, in order to select the treatment best suited to the particular type in question. The early recognition of papillary carcinoma is most essential, and the diagnosis being made, the tumor should be radically resected, if operable. In our experience fulguration and radium have proved valueless in the cure of this type of tumor.

In this connection, it should be emphasized that, following the complete removal of a papillary carcinoma by resection, a recurrence may develop which in some cases proves to be, in its early stages, a malignant papilloma, and in this stage will respond to fulguration, or to a combination of fulguration and radium. In three of our cases in which a papillary carcinoma was radically removed, recurrences were found later and destroyed, by fulguration in two cases, and by radium and fulguration in the third.

While the results following the use of radium in the infiltrating carcinomas have been disappointing, the response of the more resistant malignant papillomas to this agent has been most encouraging. Radium alone will unquestionably destroy both the malignant and the benign papillomas, and on account of its influence on the former makes possible their cure without the employment of radical procedures which would otherwise be necessary. It has been our custom, when the diagnosis of malignant papilloma had been made, to give a varying amount of radiation, dependent on the size of the tumor, and to follow this by fulguration. Some of our malignant papillomas, in which fulguration was first tried without success, radium has rendered readily responsive to this treatment. Indeed, several cases which have stubbornly resisted frequent and vigorous fulguration, after a course of radiation have responded promptly to this measure.

The development of the endovesical methods has rendered it possible to effect a cure in practically all cases of papillomas, and the employment of the more radical operative methods has not been productive of results at all comparable with those following the more conservative methods. With the exception of rare cases, in which an operative procedure is carried out, resection alone should be performed, because operation is indicated only when the tumor is a papillary carcinoma, and mere superficial destruction, as with the cautery, etc., will usually be futile.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. LEWIS AND MOORE, AND GERAGHTY

Dr. Edward L. Keyes, Jr., New York: As regards carcinoma of the prostate, I confess I have been a little more enthusiastic about "cures" than I am now. Without being cured these patients may stay in very good health, but even those who get brilliant results from a single treatment, like the two men shown here, have to be treated again and again, to keep those results good. Of course, the condition of the prostate itself is no index of the patient's general health. I saw a patient recently who was treated with radium elsewhere and whose prostate feels almost normal, but who is dying of carcinoma in his lumbar glands. But one would expect to cure patients captured early enough for radium treatment at a time when the carcinoma has not extended beyond the prostate.

Dr. Geraghty has noted that fulguration after radium works better than fulguration before radium. It seems possible that those tumors would have disappeared if he had been able to keep his hands off them for a sufficient number of months after the radium. I have seen a case of what Dr. Geraghty would call malignant papilloma improve very much in the second three months after a dose of radium.

Dr. William F. Braasch, Rochester, Minn.: As Dr. Geraghty has pointed out, the treatment of tumors of the bladder unquestionably has been greatly improved in recent years. It is reasonable to assume that in the first attempts to remove tumors by these less formidable measures a certain number of unsuitable cases would be treated, with consequent failures. If we were to judge the comparative value of nonoperative methods from statistics of past years, the operative procedure would suffer very much by the comparison. This is illustrated in recent papers by Drs. Gardner and Young.

The improvement in surgical technic has been along several lines. First, the bladders are cleaned up. Many of the patients with bladder tumor have a coincident cystitis and pyelonephritis and should be treated prior to operation much the same as patients suffering with prostatic conditions. Second, the wound should be carefully protected at the time of operation to prevent infection. Third, resection with the cautery knife is better than with the ordinary knife, and, together with cauterization of the surrounding area, should preclude any infection of the wound area. Fourth, formerly the ureters were often transplanted into other portions of the bladder with poor success, and sometimes with the death of the patient. If the ureter is markedly diseased, as it frequently is, it may be simply ligated and dropped into the wound. In such cases the kidney is usually largely destroyed and the patient does not suffer much reaction.

With the last year or two I have frequently seen patients who had been fulgurated over long periods of time. One patient had had forty fulgurations in two years. When I cystoscoped him it was evident that he had carcinoma and that it was too late for resection. Undoubtedly the tumor could have been resected if the patient had been operated on earlier.

I wish to emphasize that if, after three or four fulgurations, and possibly after using radium, the tumor does not markedly decrease in size, there is no excuse for continuing such treatment, and surgical procedures should be used. We have tried radium alone in a few cases of carcinoma, but with poor results. I disagree with Dr. Geraghty when he says that if a tumor of the bladder cannot be resected there is no object in attacking it surgically. Unquestionably good results can be obtained by using a cautery and searing the tumor almost to the muscular wall.

Dr. G. G. Smith, Boston: I should like to bear witness to the efficiency of radium in one case which I have had under personal observation. About two years ago I operated on an elderly man and took out an adenomatous prostate and a papilloma of the bladder. He did very well for two years. About Christmas I cystoscoped him and found he had an infiltrating growth extending upward from the sphincter. I sent him to Dr. Barringer, who treated him with one application of radium. That was some six weeks or two months prior to this meeting. I cystoscoped him recently and the growth had entirely disappeared, as far as one could tell. There was some sloughing around the base of the bladder.

In regard to the treatment of diverticulum, there is one point in the technic. I am not sure whether it has been put on record or not. After a diverticulum has been freed outside of the bladder by dissecting around it, it is easier to cut off the diverticulum and to approximate the cut edge if the diverticulum is inverted so that it projects into the bladder. The cutting and suturing can then be done inside the bladder in a more accessible situation.

Dr. Leo Buerger, New York: The great value of histologic examination in determining the presence of malignancy is not sufficiently appreciated, because adequate material is rarely obtained by the cystoscopist. I have, therefore, made it a routine for a number of years to attack all papillomas situated in accessible portions of the bladder with the snare, through my operating cystoscope. With this procedure we can often succeed in removing papillomas *en masse,* sometimes in two or more pieces, and can often completely eradicate the growth in one, two or three sittings, following up the removal of the growth by fulguration of the pedicle. Thus, not only is the time of treatment, the number of séances of the fulguration method, much reduced, but the pathologist receives adequate material for the thorough investigation of the nature of the tumor.

I think it is bad teaching that permits the cystoscopist to determine by the effects of fulguration as to whether a given tumor is malignant or not. Many men are treating such tumors who are not sufficiently expert to know whether a tumor is responding or not, the lack of response being attributed to faulty technic, improperly applied or improperly functionating current, or what not. Thus, patients have been referred to me after having been subjected for weeks and months to the fulguration treatment, in which the application of the snare or operating forceps through the operating cystoscope permitted a diagnosis of carcinoma at the very first visit.

The snare is a simple instrument, and with a little practice can be applied almost as easily as a ureteral catheter.

Dr. Keyes: Do you fulgurate at the end of each treatment?

Dr. Buerger: Whenever feasible I fulgurate at the end of each treatment.

Dr. Martin Krotoszyner, San Francisco: With reference to the method used in the treatment of diverticulum of the bladder mentioned by Dr. Smith, I recall a patient 73 years old in whom a very large diverticular sac was drawn into the bladder, just like one would turn a glove finger; the sack was then resected and its cut edges were stitched by several rows of catgut sutures. The patient eventually made a good recovery.

While the early and radical operative removal of malignant bladder tumors must be always recommended and carried out wherever feasible, the observation, nevertheless, that not infrequently patients live longer without than with operative interference would open the question whether, in the absence of distressing symptoms, an operation is indicated in all cases and under all circumstances.

Dr. W. C. Quinby, Boston: I want to add my mite to the paper of Dr. Lewis on diverticulum of the bladder by the brief report of one case. A man aged 55 had suffered from intermittent chills and fever, which had kept him a chronic invalid for twenty years, until I eventually got hold of him and succeeded in demonstrating and removing a large diverticulum on the right side of his bladder, much in the same way as Dr. Lewis has detailed to us. The first point which I wish you to note is the long story of invalidism which these patients so often bring. I hope that that period is going to be much diminished in the future. It is now being much diminished; the more so as the attention of the general practitioner is more forcibly called to such lesions as a cause of pyuria. The second point of note occurred during the convalescence of this patient. While water was being given in very liberal amount to help out the severe renal infection, the heart suddenly became irregular and weak. It was impossible by the usual means to rule out an acute dilatation from too much fluid. The electrocardiogram, however, came to our assistance. The tracing showed the condition to be due to an auricular fibrillation and not to decompensation of the heart due to the fluid. I was able to continue the fluid, and, under appropriate treatment, the fibrillation ceased. The patient is now cured of his diverticulum.

Dr. Bransford Lewis, St. Louis: I think that Dr. Quinby and I have a similar impression as to the value of presenting these reports, and that is one of encouragement for undertaking, in the first place, the diagnosis of these cases, and, in the next place, operating. One of these patients whose case I reported had a longer history of trouble than the one that he speaks of. He was 42 years of age and gave a history that ever since he could remember he had had chills and fever and could never clean his bladder; he was always septic; and he recovered just as promptly as did the other. Before I undertook these operations I was rather fearful that they were difficult to carry out and that the convalescence would be prolonged. I remember in certain cases of other operators the patients did have very difficult convalescence. These men both were well within ten days after the operation, and were thoroughly comfortable, urinating and emptying the bladder completely, and happy over the result. I think encouragement is the keynote of the presentation of the cases.

Dr. John T. Geraghty, Baltimore: With regard to Dr. Keyes' remarks about the disappearance of these tumors under radium, I think that is perfectly true. In some of the cases which have been allowed to go without fulguration the tumors have disappeared. We have used fulguration to cause a more rapid disappearance of the tumor. Those which disappeared under fulguration after irradiation would probably have disappeared under irradiation alone.

With regard to the technic of resection, we make it a rule to burn the tumor vigorously before attempting resection. As soon as the bladder is opened the whole tumor is destroyed down to the base. Whether one carries on the dissection by the knife or the cautery makes little difference. When one destroys the whole area thoroughly it amounts to resecting that area of the bladder wall.

With regard to the cases mentioned by Dr. Braasch, it has been my experience that the tumors which we can destroy by the cautery are tumors that practically always respond to fulguration and radium. Those cases with infiltration I do not think would be cured by destroying with the cautery. There are a few cases in which the tumor is a definite, infiltrating carcinoma with a pedicle, and that tumor must be resected. Cutting off the tumor through the mucosa at the pedicle with the cautery is probably just as efficient as a resection.

With regard to the remark that the mortality from resection should not be as high as 12 per cent., our mortality in twenty-two resections has been one death.

A Family Epidemic of Syphilis.—E. Jeanselme reports that syphilis was brought into a previously healthy family by the soldier husband of one of the daughters. He had been at the front for nine months. Three weeks after his return to his troop from his brief furlough, his young wife and her nursing babe began to show syphilitic lesions. The child was weaned at the tenth month, and the grandmother and a younger sister, who tended the babe, both developed syphilids in the mouth and tonsils, and the latter in the skin. They also took care of the babe of a third sister, and this infant soon developed syphilids in the palate, with roseola and mucous patches in the mouth. The mother of this infant was infected in turn. There are now six syphilitic members of the family, and only three in the household are still apparently exempt. As one of these, a girl of 12, has been sleeping with the younger sister, she is probably infected likewise. In making his report to the Société médicale des hôpitaux (*Bulletins*, p. 854), Jeanselme added there is a regulation forbidding furloughs to soldiers in a contagious stage, and asked why this regulation was not enforced. The syphilitic lesions developed in the mouth of those tending the babes, probably from the habit of tasting the infant's food, using the same spoon.

A CASE OF CYSTITIS CAUSED BY BACILLUS COLI-HEMOLYTICUS

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As little mention of the hemolytic properties of colon bacilli is made in the literature, the following report may not be without interest.

From a patient, an adult woman with some obscure bladder or kidney trouble, several samples of catheterized urine were collected in sterile bottles and submitted for bacteriologic examination with the suggestion that the case might be tuberculous. The urine when received was cloudy, but on standing or centrifuging rapidly settled out clear. Microscopically the sediment showed numerous pus cells, no casts, and large numbers of a doubtfully motile and gram-negative bacillus of general colon morphology. No acid-fast organisms were found in the urine.

Three guinea-pigs were inoculated in the groin with the centrifuged urine sediment as follows: Oct. 9, 1916, one was inoculated with the sediment of about 50 c.c. of urine, and died, November 6, showing at the site of inoculation a necrotic area and pocket under the skin, but no enlarged glands or other signs of tuberculosis. A mixed growth was obtained in cultures from the inoculation site and from the heart's blood. None of these organisms could with certainty be identified with those originally found in the urine. October 18, two guinea-pigs were inoculated with the sediment of about 100 c.c. of urine. One of these died, November 14, showing no evidences of tuberculosis, the chief lesions being ascites, slight peritoneal inflammation, and, as in the case of the first animal, a necrotic area and pocket at the site of inoculation. The third guinea-pig died nearly a week later, November 20, and showed lesions in every respect like those of the second animal. As in the case of the first guinea-pig, mixed cultures were obtained from the second and third animals, but none of the organisms so obtained could be identified with the original organism in the urine. It seems probable that the guinea-pigs died from slow toxic effects of the bacilli and pus cells injected, and that the inoculation sites became infected with outside organisms.

Four white mice were inoculated with the urine sediment, two intraperitoneally, and two subcutaneously at the root of the tail. All four mice lived about one month without showing evidences of ill effects of the inculations when, along with other mice in the laboratory, they were destroyed by rats.

Cultures of the sediment of the urine and of the urine itself were made with the following results: On plain agar, on starch agar, and on plain broth no growth was made. On coagulated pleuritic fluid, on hydrocele agar, and on Petroff's egg medium for tubercle bacilli, an abundant moist colorless growth occurred.

On blood agar plates by the addition of a few drops of blood taken from a finger to melted agar tubes and inoculated with some of the urine, colonies readily developed, in marked contrast to their absence when plated on plain agar. On the blood agar plates a distinct zone of hemolysis occurred around the colonies resembling that produced by *Streptococcus hemolyticus*. Four different samples of the urine were plated in the foregoing manner and always with the same results. After preliminary inoculations on the more special mediums, growth occurred on plain mediums.

After preliminary insolation the bacillus reacted on sugars as follows: Acid and gas with glucose, lactose, and mannite; no acid or gas with saccharose, raffinose, or inulin. Gelatin was not liquefied. Indol was produced.

A macroscopic agglutination test was made, with a suspension in salt solution of the bacilli grown on coagulated serum, serum from the patient, and serum from an apparently normal person. After five hours in the incubator the following unsatisfactory results were obtained, the marks in parentheses being those obtained with the normal serum: Dilution 1:10, — (++++); 1:20, ++ (++++); 1:40, ++ (+++); 1:80, ++ (++); 1:160, ± (+).

The organism seems to be the same as that which Schottmüller and Much[1] called *Bacillus coli-hemolyticus.* Schmidt,[2] in a review of hemolytic intestinal bacteria, says *Bacillus coli-hemolyticus* cannot be considered as a well established variety, and thinks the hemolytic properties of the organism are rather accidental. He does not believe that power to cause hemolysis is any special indication of pathogenicity.

The inability of this bacillus to grow on plain agar when first planted from the urine is very interesting, as colon bacilli are usually easy of cultivation. It shows a high degree of specialization and adaptability on the part of the colon bacillus when what is ordinarily an intestinal saprophyte can become so restricted in its habits as to need human blood or other complex proteins for its nutrition. Administration of hexamethylenamin in this case had no effect in restraining the organisms. The patient was given general and local treatment and an autogenous vaccine, and made marked improvement.

New and Nonofficial Remedies

THE FOLLOWING ADDITIONAL ARTICLE HAS BEEN ACCEPTED AS CONFORMING TO THE RULES OF THE COUNCIL ON PHARMACY AND CHEMISTRY OF THE AMERICAN MEDICAL ASSOCIATION FOR ADMISSION TO NEW AND NONOFFICIAL REMEDIES. A COPY OF THE RULES ON WHICH THE COUNCIL BASES ITS ACTION WILL BE SENT ON APPLICATION. W. A. PUCKNER, SECRETARY.

CAMIOFEN OINTMENT.—An ointment obtained by mixing iocamfen (a liquid obtained by the interaction of iodine 10 parts, phenol 20 parts and camphor 70 parts, containing about 7.25 per cent. free iodine) with an equal weight of a mixture composed of lard, wax and oil of theobroma, but containing nearly all of its iodine in the combined form.

Actions and Uses.—The ointment has the properties of fatty iodine compounds, phenol and camphor.

It is used in various skin diseases, inflammatory swellings, itching, etc.

Dosage.—It is applied directly or on gauze, undiluted or mixed with fatty substances. The parts to which camiofen ointment is applied should be dry and the application of mercuric chloride before or after the use of the ointment must be guarded against.

Prepared by Schering and Glatz, New York. No U. S. patent or trademark.

Military Medicine and Surgery

PRESENT STATUS OF SURGERY AT CASUALTY CLEARING STATIONS

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Service in two years of the great war, with an interval visit to civil life, leads one readily to comparative views. The periods of service have been passed at base hospitals and casualty clearing stations under British Expeditionary Force control. About one half of the base hospital work was performed under clearing station conditions, and it is desired to convey to readers in the United States a general conception of the progress of war surgery and of the detailed work of advanced casualty clearing stations.

ORIGINAL FUNCTION OF CASUALTY CLEARING STATIONS

The original function of casualty clearing stations was to act as a very advanced collective depot for patients from contributory field ambulances with their outlying dressing posts. The position selected was one within a few miles of the firing line, fairly well isolated and remote if possible from the danger of active shelling (chance shelling and aerial bombing must always be anticipated). The situation chosen must also be near the rail head, where ambulance railroad trains can be sidetracked and rapid evacuations practiced. The invaluable aid of gasoline motor ambulances makes these short transportations rapid and quite painless to injured men. Patients are brought from the field ambulances very quickly after their reception there, because little major operative work is attempted at these posts—merely a classification and dressing are all that is desired. Formerly the clearing stations did not attempt much surgery, especially in rushed times, but some serious cases were dealt with and retained, for which a relatively small but very efficient medical staff was maintained. Stations two years ago averaged a capacity of 200 wounded; they now can care for a thousand.

PRESENT STATUS

Method of Group Arrangements.—In the present status of casualty clearing stations, we find them grouped in series of three, in close geographical proximity, provided with ample staff and with tent facilities to withstand a maximum strain. This close position permits the feeding of one ambulance train from all three, and allows of the following arrangement: Motor ambulances with patients are received by No. 1 in the series of three, until 200 patients are taken in, or until twenty-four hours have expired from the time the first patient came in. The next station in the series then receives in like manner 200 patients or for a period of twenty-four hours; following that the third station completes the round. Such an interrupted distribution gives each station an opportunity to operate on the patients that enter and to evacuate rapidly as many as possible. Rest for the staff is also provided. The capacity for the wounded is equivalent to a thousand men. This does not, however, indicate 1,000 beds, because many men are left lying on the stretchers without being put in bed and are passed along thus to the base.

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[1] Schottmüller and Much: München. med. Wchnschr., 1908, 55, 435.

[2] Schmidt: Centralbl. f. Bakteriol., Orig., 1909, 50, 359-373.

Method of Reception and Distribution of Patients.—This is simple. Separate reception tents are provided for walking and lying patients with a medical officer in charge of each. Officers—even prisoner officers—are segregated. Walking patients are dressed, fed and evacuated, unless they demand surgical interference, in which event they are sent to the theater for minor operations, cared for, and then evacuated in chronological order of reception.

Lying patients are distributed, marked with colored tags, into resuscitation, preoperative (major and minor) and medical wards (for gassed or other medical conditions). Not yet diagnosed patients or instances of doubtful diagnosis are carried to an examination room and are carefully gone over by two medical officers. For the resuscitation ward those patients are intended who are moribund. There are facilities for administration of salt solution, external heat and stimulants. The men are not handled or removed from their stretchers, so that this ward need contain no beds. In the preoperation ward the same rule is followed: Patients are prepared on their stretchers; a preoperative dressing is applied and they await movement, in order, to the roentgen-ray or operating room. The various tents and structures are so arranged, moreover, that a continuity of traffic of these patients is possible, resulting in no confusion of passing stretcher bearers or recarrying over the same ground. Human energy and distress of the patient are minimized. Hospital tents are marked with colored flags corresponding to the colored tags, so that bearers make no errors.

Personnel.—A commanding administrative officer, a head of the surgical division, a quartermaster, a laboratory officer, a roentgen-ray operator and various medical officers needed in the different positions outlined compose the official list. There are, of course, the necessary number of enlisted men, clerks, sergeants, servants, etc. In addition there are assigned to each station surgical teams, composed of picked men of surgical ability, each supplied with his own anesthetist, operating nurse and orderly. These teams divide the major and minor surgical patients in rotation as fast as they are able to finish each operation. Team work is divided thus: Each team works for eight hours a day, except during rush times, when they are expected to perform sixteen hours of duty. Three teams are on duty from 9 a. m. to 5 p. m. in the major theater, using five or six operating tables; two teams work from 5 p. m. to 1 a. m., and one team from 1 to 9 a. m. under ordinary conditions. The work is continuous as long as the hospital is taking in. Teams cease to take on patients one-half hour before the expiration of their time, so that their table may be cleaned and prepared for the next group.

Operating Theater.—The major operating theater is centrally located; the minor theater is near the dressing tent. All are electrically lighted. The arrangement of the five or six tables in the major theater permits the anesthetist to move from patient to patient in advance of the operator, while dressings and splints are being applied or the operation is being finished. The operating nurse assists the surgeon; the orderly brings supplies, helps with the dressings, and cleans up the table. There is complete independence for each team.

An ample supply of dressings, gloves, instruments and splints is at hand, and the sterilizers for instruments are constantly boiling during work. After instances of gas infection or before serious operations—especially head and joint—a complete clean-up of the surgeon and nurse is expected; otherwise, for extremity wounds, gloves may be washed on the hands, and then dipped into sterilizing solutions.

Nitrous oxid gas, ethyl chlorid, chloroform and ether anethesias are used. The Shipway warm vapor chloroform-ether apparatus is much in vogue, and is very useful for nasal anesthesia in head operations.

Great rapidity and thoroughness of operative procedure is required. In times of stress, the minor operating theater can be expanded to permit the performance of major operations.

Dictation of the pathologic condition found, together with the details of the operation, is made by the surgeon to a clerk who enters this information on the field card and then copies it into an operative book, together with the patient's name, rank, distribution, etc. A serial hospital number is given to each patient as he enters the reception tent. As he leaves, this is removed from the field envelop by the evacuation officer, in order to provide a record of each man and to prevent any one getting lost. Varying with the severity of the injury sustained, patients are retained for a period of from a day or two to ten days. Many are sent to tents near the evacuation compound to await removal to the base by train as soon as they have recovered from the anesthesia. No beds are needed in these tents. Wounded prisoners are given the same treatment as the allied soldiers.

Character of the Surgery.—The character and practice of surgery in these stations is fairly uniform. Team surgery has but recently been introduced; statistics, however, from a push still in progress have shown that individual suffering and length of convalescence are lessened and mortality greatly lowered by this method. The policy of operating as early as possible in at least 90 per cent. of casualties—except moribund patients—has come to stay. In brief, this course may be outlined as an intent to do radical early excision of contused and tousled tissues, to remove foreign bodies, to irrigate and close opened joints, and to close most wounds snugly thereafter if possible. The use of bismuth iodoform pertrolatum paste, to which I recently called attention,[1] varies with different surgeons. It has distinct value; its limitations demand a broader discussion. For gas infections or suspected gas infections, muscle group excisions, very radical in character, are indicated. The Carrel-Dakin solution irrigation method usually follows, and field envelops are marked C. D. so that the treatment may be continued on the train during transfer to the base.

Distribution of selected types of wounds to different groups of casualty clearing stations is also now being practiced. One group cares for all the head injuries in its vicinity; another all the chest and abdomens and another, extremity surgery so far as this is possible. It is understood, of course, that the surgeon cares for all wounds received by the man, regardless of the type of his most severe injury.

Head injuries are treated by complete excision of contused scalp and pericranium, bone edges and buried fragments. Dural and cortical tissues are gently trimmed off, and foreign bodies extracted when possible. Careful closure of the wound is very important, capillary drains being used, the scalp being dissected from the pericranium, or a plastic repair performed.

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[1] Speed, Kellogg: Prompt Removal of Foreign Bodies in Gunshot Wounds, The Journal A. M. A., Sept. 29, 1917, p. 1079.

In all brain injuries, bromids are given, and the patients kept at rest for some time.

Chest injuries are likewise exercised, even rib excisions being performed; and pneumothorax is closed off, foreign bodies being extracted if possible. Hemothorax is aspirated early, and cultures are made. If positive, early drainage is performed.

In the extremities, all contused and dirtied tissues are excised down to freshly bleeding and contracting muscle, regardless of extent. Joints are approached with the greatest caution because the synovial surface may not be invaded. A painstaking careful dissection of dirtied tissues is made, and if the joint is opened or a foreign body is within, it is taken out, irrigation with neutral solution of chlorinated soda, ether, or the injection of glycerin-formaldehyd solution is made and then the joint is *quickly closed off* by suturing its capsule together or into the bone. The external wound is sutured or not depending on circumstances, and splint immobilization follows. I wish to impress the value of this method on surgeons entering war service. I have in preparation an article dealing with gunshots of the knee which shows plainly the great advantage of this treatment over the "leave-it-alone" or continuous irrigation treatment. All patients from casualty clearing stations are evacuated to the base as soon as they can be safely and consistently moved.

No. 12 Casualty Clearing Station, B. E. F.

FIELD SANITARY ORDERS

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The science and practice of military hygiene, not so many years ago, in the field at least and on a large scale, was in a somewhat unsatisfactory state. It is true that we had ideas on the subject—many of them good ones—but some very important things were not known even so recently as the Spanish-American War. For instance, our ideas were comparatively hazy as to the methods of transference of typhoid fever; we did not know that flies act as vectors, and we had but crude notions as to the effect of contact in spreading the disease. The average physician knew little about the microscopic diagnosis of malaria. Much of the typhoid fever in our army camps was erroneously called malaria—to the considerable detriment of the sanitary situation. Again, we did not appreciate the great importance of what we now call "carriers" in the propagation of infectious disease, and consequently our quarantine methods were quite imperfect.

Decided changes have, however, occurred. As the result of great improvements in laboratory and experimental methods, and the application of these to hygienic problems, we have now formed rather complete ideas as to how camp sanitation ought to be effected, at least with reference to the most important of the camp diseases. Our doctrine has been abundantly verified by the results of the practical experience of our army surgeons. Many of them, certainly those who have had considerable field experience in later years, nowadays know what to do along these lines. If we could carry out fully the scientific measures that we now know how to apply, camp diseases would no longer be serious matters. The new men will readily learn in the instruction camps, or, if they do not have the benefit of these, soon after seeing active service with the troops, all the important points, most of them quite simple, as to what can and should be done in field sanitation.

The real issue of importance nowadays in military sanitation is whether those things that we know how to do and that can readily be done will actually be put into practice. This, in turn, depends almost entirely on whether the sanitary officer can obtain the cooperation of the line officers and soldiers. Everything in the army comes back in the end to the question of rank and command. I think that, without doubt, the most satisfactory—indeed, the only sure way—is to induce the commanding officer to issue a general sanitary order in the beginning, signed by his authority, and explaining in a general way the sanitary duties of the command, and the methods prescribed for their accomplishment. This persuasion ought not, in these times, to be very difficult. Laymen are coming more and more to realize that something must be done in the way of sanitation. Having issued this order himself, the commander will continue to support it, especially after he sees the results, including much benefit to his own peace of mind, that accrue from the plan.

The real secret of success in military sanitation—the key to practical results along these lines—is the sanitary order. I think the idea important enough, at least, to be exploited for the benefit of the many civilian physicians now in army service. A minor benefit accruing from the order is the avoidance of differences among medical officers themselves as to the sanitary measures advised in their several organizations. These might all be good and yet conflict with each other when it comes to the question of administration.

We have always had some notion in the Army as to sanitary orders and their value; but the first time that the idea was worked out in detail in a camp of large dimensions, and used in a practical way, was at the divisional maneuver camp at San Antonio, Texas, in 1911. This was, indeed, the first camp on a large scale, of which we have record in our Army, in which the sanitary arrangements and results may be said to have been entirely satisfactory. There was no serious disease—very little of any kind—thus affording a most striking contrast with our Spanish War camps of a few years before. The occasion was, indeed, an epoch-making one for field sanitation. The main point is that the remarkable sanitary results attained there coincided with the fact stated above, namely, that this was the first occasion of the issue and use as a working basis of the divisional sanitary order. We had the antityphoid vaccination, it is true; we had many improved sanitary methods; but that these really proved effective was no doubt largely due to the order. It was issued by Major-Gen. W. H. Carter, under advice of Col. H. P. Birmingham, division surgeon, and Major P. F. Straub, sanitary inspector. The experience was repeated, and entirely adequate sanitary results were attained in the division camp at Galveston, Texas, a few years later. Major-General Carter was again in command. Col. W. B. Banister was division surgeon, and Major R. B. Miller, sanitary inspector.

The following model for a divisional sanitary order, which shows about what we should aim at, is based on the San Antonio order, and is constructed in accordance with the form recommended by Straub.[1]

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[1] Straub, P. F.: Sanitation of the Maneuver Camp at San Antonio, Texas, Mil. Surgeon, 1911, 29, 607.

MODEL FOR DIVISIONAL SANITARY ORDER

Headquarters, Nth Infantry Division,
(Place)
General Orders, (Date)
No. ——

The following regulations for field sanitation are published for the guidance of all concerned:

1. Division Surgeon.—The division surgeon is charged, under the commanding general, with the general conduct and supervision of the Medical Department of the division, and will make timely recommendation concerning all matters pertaining to the sanitary welfare of the command.

2. Sanitary Inspector.—The division sanitary inspector is charged, under the division surgeon, with investigating and reporting on the sanitation of the command. He will report the results of his inspections to local commanders as well as to the division surgeon. Commanders of all grades are responsible for the sanitary condition of the localities occupied by their commands and for the enforcement of sanitary regulations within their organizations.

3. Regimental Surgeons.—The senior medical officer of each regiment or other organization will make at least one inspection daily of his command, and report orally any sanitary defects, with proper recommendations for the correction of the same, to his immediate commanding officer, who will immediately take the necessary steps for their correction, if within his authority. If beyond his facilities, or if considered impracticable, he will immediately report the facts, with full explanation, for action of higher authority.

4. Water Supply.—All drinking water supplies will be disinfected by the hypochlorite process in the field sterilizing water bag. To prevent subsequent contamination, containers must be kept scrupulously clean and protected from dust and other sources of infection.

5. Disposal of Waste.—Defilement of the ground in or about the camp is absolutely prohibited, and organization commanders will be held strictly responsible for the sanitary police of their respective camps. (*a*) *Human Excreta.*—Human excreta will be disposed of in pits provided with latrine boxes; urine by day in urine soakage pits, and at night by urinal cans placed in the company streets. Pits and cans will be burned out with crude oil and hay, and seats scrubbed with cresol solution, daily. It must be remembered that fly-proofing is the essential end aimed at in these waste disposal measures. (*b*) *Kitchen Wastes.*—Each company or other organization will construct and use exclusively rock pile incinerators for the disposal of all solid and liquid garbage. Garbage cans must be kept scrupulously clean. For the general waste of the camp areas not under the jurisdiction of subordinate commanders, rock pile crematories will be erected and used under the direction of the regimental sanitary squad. No bath or other waste water collections that might breed mosquitoes will be allowed. (*c*) *Picket Line Wastes.*—Picket lines will be gone over daily, and all manure and sweepings collected and hauled to the designated dumping ground, where they will be burned in incinerators. The picket lines will be burned over weekly with crude oil.

6. Food and Drink.—No articles of food or drink will be sold in camp, except in the authorized exchanges, and no purchases of such articles made by soldiers, outside of camp, except from properly licensed venders. Company kitchens and mess rooms will be securely screened, or such additional or alternative method instituted, acceptable to the division surgeon, as will prevent access of flies and dust to food or its containers.

7. Tent Hygiene.—Organization commanders are directed to assure themselves personally that suitable ventilation of tents and sunning of tent areas are practiced by their men; as also, adequate personal cleanliness. Mosquito bars and head nets and prophylactic quinin will be used when directed by competent medical authority.

8. Quarantine.—All regulations imposed by competent medical authority as to isolation in the case of infectious disease, or prophylactic measures in regard to the same, will be scrupulously observed by the command.

9. Sanitary Squads.—Sanitary squads will be organized by the division surgeon for each regiment, or other organization. One of the regimental medical officers will act as local sanitary police officer. He will be assisted by a Hospital Corps sergeant and the requisite number of Hospital Corps privates and civilian laborers. These squads will do whole-time work, and will supervise and assist in the purification of drinking water, the disposal of camp wastes, and in disinfection. A general sanitary squad, under a divisional sanitary police officer, will also be organized for sanitary work not pertaining to organizations, such as the handling of manure, general drainage, antimalarial work, the final police of vacated grounds, etc. Civilian sanitary laborers will be employed by the Quartermaster Corps and turned over to the Medical Department. The sanitary police officers will make requisition on the chief quartermaster for such transportation, labor or material as may be needed for sanitary work; when assigned to this service, they will not be diverted to other uses except by orders from these headquarters.

By Command of Major-General Blank:
A. B. C.,
Chief of Staff.

Official.
X. Y. Z.,
Adjutant-General.

COMMENT

The foregoing order, as stated, follows Straub's outline, which is the best for practical purposes. In Sections 4 and 5, certain suppositions are made for clearness' sake, as to the water supply and the methods employed for the disposal of excreta. Of course, in some camps, the water supply might be piped from a pure source, and disinfection would not be necessary; or, again, the incineration method might be used for the disposal of excreta. In such cases, the order could easily be modified to correspond with the local situation. In most other respects, the order, as written, would apply in any situation. The order can also, when necessary, be easily changed to apply to a brigade or regimental or even smaller camp. In any case, however, an order should issue.

Field orders should not go into too much detail as to methods; merely the authority and a general statement as to the kind of methods to be employed are wanted. The details are described from time to time in circulars published by the Surgeon-General's Office or the War Department. The order, in other words, is not intended as a sanitary text, but merely as a sanitary *authority*. Directness and conciseness are necessarily the chief desiderata in military orders.

The model suggested is perhaps a little too long, but by making it long I have been able to include by mention, or at least by inference, practically all the subjects to which the neophyte in field sanitation would be likely to have his attention at first directed. It is hoped that a careful perusal of the order will clear up what at first seems a rather difficult matter, and afford an easy and satisfactory means of orientation at this period for the new medical officer in the work of cultivating "preparedness" for his service in actual campaign.

The medical officer should never forget that *results* are what the nation demands. They must be produced. The way for the medical officer to secure them is to establish a satisfactory working relation with line officers, who alone have the power, and on whose action the successful or unsuccessful issue of the sanitary as well as of the military situation must in the final analysis really depend.

Army Medical Museum, Seventh and B Streets S.W.

THE VENEREAL DISEASES

(Concluded from page 126)

NOTE.—This is the fifth and final instalment of the series on "The Venereal Diseases." As already announced, these articles are being reprinted in the form of a manual which will be ready in about two weeks, price 25 cents.

PROGRAM OF ATTACK ON VENEREAL DISEASES

AN OUTLINE OF ACTIVITIES AND COOPERATING AGENCIES PLANNED TO REDUCE THE PREVALENCE OF THE VENEREAL DISEASES

Methods of attack on venereal diseases divide themselves into four classes:

A. Social measures to diminish sexual temptations.
B. Education of soldiers and civilians in regard to venereal diseases.
C. Prophylactic measures against venereal diseases.
D. Medical care.

A. SOCIAL MEASURES TO DIMINISH SEXUAL TEMPTATIONS:

(1) The suppression of prostitution and the liquor traffic.
(2) Provision of proper social surroundings and recreation.

These activities which have to do with social matters largely fall outside the jurisdiction of the medical service of the Army, but this service can render these activities more efficient by stimulating and supporting them, and wherever practicable such support should be given.

(1) Suppression of prostitution and liquor traffic in zones.

Keep careful track of conditions as regards these two matters in surrounding districts, in cities or towns where soldiers go, and in travel gateways.

In camps and zones, we have the following agencies which may be utilized:

The constituted authorities, military and civil.
The Commission on Training Camp Activities, War Department.
Local and national volunteer agencies may be utilized to discover failures and abuses, and to help otherwise in the work under direction of the proper authorities.

Outside the zones, a large number of forces can be used. Among these:

State Councils of National Defense.
Civil police and health administrations.
Associations of commerce.
Women's clubs.
The press.
Social hygiene and vigilance societies, and other social and religious organizations of influence in civil communities.

(2) Provision of proper social surroundings and recreation.

In camps and zones, plan to:

Develop social activities and amusements.
Provide places where soldiers may go for comradeship, to meet friends, to "loaf."
Supply an attractive place, or places, for soldiers to meet their women callers in camps and near camps.
Establish, under police authority, women patrols in zones.
Enforce rules against women being received in soldiers' tents or being allowed the freedom of camps.
Encourage facilities for interesting the soldier in reading, lectures, music, congenial friendships, hobbies.

For this purpose, we have for use in camps or zones, or both:

The Commission on Training Camp Activities, supervising activities of the Young Men's Christian Association, Playground and Recreation Association, Knights of Columbus, Young Women's Christian Association through its hostess houses, the American Social Hygiene Association, and other national and local organizations invited to carry on special activities.

Similar provisions for social diversions and proper social surroundings should be provided outside the zones, and if possible, provision at least for their inspection by military inspectors should be provided.

For use outside the zones, we have practically all the above agencies which are organized to conduct similar work in communities accessible to soldiers but not within the military zones.

An effort should be made to stimulate local organizations in towns near camps and at railroad centers to furnish proper social diversions and amusements for soldiers, and to provide places where they may go when on leave.

Enlisted men's clubs for this purpose, charging a small fee, say 25 cents monthly membership, are greatly to be desired.

Organizations of men and mature women to furnish members to meet soldiers in a friendly way, and to give them information and directions are desirable in towns and at railroad centers and other points in large cities where soldiers come in numbers. Fraternal organizations should be enlisted in this work.

Pressure should be brought to bear on the civil authorities to suppress vicious amusement places, to clean up parks and other recreation places, and to furnish for such places morals police. For this purpose, the members of special law enforcement organizations could be used.

Inspection of social and moral conditions in the camps, in the zones, and in contiguous districts and of the work being done by the various agencies for social betterment should be made by federal authorities. Similar volunteer inspections by dependable vigilance and other civic associations should be encouraged.

B. EDUCATION OF SOLDIERS AND CIVILIANS:

(1) *For Soldiers: (a) Lectures; (b) Pamphlets; (c) Exhibits.*

(a) Lectures to soldiers should be given by medical and line officers and by competent volunteers furnished by outside agencies, under invitation and direction of the Medical Department. These, beside inculcating continence, should explain the risk and waste of venereal diseases and the program adopted to avoid them. Lecturers without authority should not be permitted.

(b) A pamphlet should be given the soldier as soon as possible after enlistment. This pamphlet should be very brief and should warn the soldier of the venereal dangers to which he may be exposed and give instructions, if he should be exposed, to report as promptly as possible to his regimental infirmary.

It would be very desirable if a pamphlet could be distributed at the place of meeting of Exemption Boards. Later somewhat fuller pamphlets should be distributed to soldiers through medical and line officers, or by accredited volunteer social hygiene societies.

(c) Exhibits, such as the Coney Island exhibit of the New York Society of Social Hygiene, the exhibit of the National Cash Register Company, the exhibits of the Oregon Social Hygiene Society, the Missouri Society and other exhibits and demonstration methods worked out by the American Social Hygiene Association should be adapted to the needs of military life and furnished to each cantonment.

(2) *For Civilians:*

In the attack on the venereal problem, it is highly desirable that such educational activities as those outlined above for soldiers should be stimulated for the civilian population.

The influence of the military authorities should be given to the national organizations for social hygiene and to the numerous sanely conducted local organizations of the same sort.

Encouragement should be given to the organizations which are undertaking to arouse the interest of the woman population of the country in matters of social hygiene and for instructing women in regard to venereal diseases.

Organizations dealing with these matters which attempt to reach women should be encouraged, especially in the vicinity of camps. An increasing number of influential organizations, such as the General Federation of Women's Clubs and Patriotic Women's League, are indorsing and supporting sound social hygiene programs, and supplementing the more specialized efforts of such organizations as the Young Women's Christian Association and the Women's Christian Temperance Union.

C. PROPHYLACTIC MEASURES

Instruction in Prophylaxis:

Soldiers should be informed of the fact that there are prophylactic measures that reduce the dangers of venereal infection. But this instruction should take particular care to inform them that there are limitations to such prophylactic measures and that they furnish only partial protection and in no sense give freedom from risk.

Regimental Infirmaries:

The provision of prophylaxis (early treatment) in regimental infirmaries, which should be open day and night, is imperative in any sane attack on venereal diseases. The prophylactic station should be utilized as a place for personal advice and education against future exposure, and should be conducted as an early treatment dispensary. Any spirit of levity or condoning sexual promiscuity should be discouraged, and obscene stories or objectionable conduct should be rigidly repressed. The men assigned as officers in charge of these stations should be mature and with the personality and force of character calculated to gain the confidence and respect of the men applying for treatment. The medical officer in command should be impressed with the strategic importance of the prophylactic station for education, appeal, and the securing of social facts of vital importance in the prevention of venereal diseases.

Infirmaries in Civil Centers:

In cities, where there are no adequate civil dispensaries to be used and through which soldiers in considerable numbers pass, either while on leave or in travel, there should be provided in accessible locations regimental infirmaries. In a few cities, where dispensary services are particularly well developed, regimental infirmaries may be replaced to advantage by accrediting these civil dispensaries for use. Information should be furnished to soldiers of the existence and location of such regimental infirmaries and available dispensaries.

Leaves of Absence: In the interest of health, long leaves of absence for soldiers should as far as possible be discouraged. Leaves of absence of more than twenty-four hours are particularly dangerous, and it would be desirable if leaves of absence should be timed from as early an hour in the day as possible.

In cases where soldiers have been exposed, particularly if for any reason exposure seems unusually dangerous, special observation of such exposed men should be made, and if practicable these observations should be repeated at intervals of a couple of days for two or three weeks.

All pressure possible should be made by military authorities against houses or women which experience shows are frequent sources of infection, and this should be extended as far as practical to prostitution generally. The more effective the repression of prostitution can be made the greater will be the reduction in venereal diseases.

All possible influences should be brought to bear to encourage civil authorities in the attack on prostitution in all its phases. A medical program for civil communities equivalent to the military program for prevention and treatment should be encouraged.

D. MEDICAL CARE

Hospital Organization:

There should be a special service in each cantonment hospital to care for skin and venereal diseases.

As far as possible, all such cases should be in charge of the venereal service, and where, for any special reasons, such cases must be under other services, the senior officer of the venereal services should be, if possible, consulted in regard to them.

In the venereal disease service, there should be at the head an experienced specialist in these diseases, and whenever possible another medical officer trained in venereal diseases should also be in the service. The other medical officers assigned to the service need not necessarily at the beginning be trained in venereal diseases.

In the event that mature specialists from the Medical Officers' Reserve Corps cannot be furnished for the head of the service in each one of the cantonment hospitals, it would be practicable to use two half-time men, serving on alternate days, to act as head of this service, these men to be obtained from adjacent large cities. Under such conditions, there should always be furnished a qualified junior officer.

Instruction in Venereal Disease for Medical Officers:

One of the important functions of these services will be to train a group of men in venereal diseases. The service will, if well conducted, rapidly develop the knowledge of these diseases among medical officers.

It should be distinctly understood that one of the duties of the trained specialists who go into this service will be that of teachers of venereal diseases to the less well trained medical officers, and regimental officers should be encouraged to avail themselves of the opportunity for instruction furnished by these services.

Emphasis should be placed on the necessity of high standards of technic in carrying out treatment.

Hospital Cases:

The cantonment hospital should have under its care all cases of venereal diseases which are in the acute, infectious stages: These include:

All cases of acute gonorrhea.

All cases of syphilis during the early infectious stage and which have chancres, mucous patches, or condylomata.

But it should be seen to that hospitalization of venereal disease does not become an abuse which is allowed to interfere unduly with military duty.

There should be no leaves of absence for infectious venereal cases, and cases which have passed the acute infectious stage but which might become dangerous through the pos[illegible] mucous patches or of chronic [illegible] should not be allowed leaves of absence from camp.

Standard Records:

The syphilitic register of the army should be carefully and fully kept and social facts of epidemiologic importance should be secured in every case if possible.

Standardized Treatment:

An effort should be made to standardize in a general way methods of treatment, and provision should be made for some special instructions in venereal diseases for all medical officers who have charge of troops. To this end, a manual of instructions should be issued to each of the medical officers in the army. This should especially emphasize the great importance of early diagnosis and treatment in venereal diseases and outline suitable methods of treatment.

There should be furnished cards of brief instruction to patients with gonorrhea or syphilis.

Laboratory Facilities:

Laboratory facilities are necessary:

(1) For demonstrating gonococci and other bacteria.

(2) For demonstrating spirochetes by dark field illumination.

(3) For urinalysis (which should be required once a week for every syphilitic patient under treatment). These laboratory facilities should be in the wards of the venereal service.

(4) For Wassermann tests. These to be in the general laboratory.

Inspections:

In order to keep up a high standard of effectiveness, there should be provision for inspection of these services by special inspectors in venereal diseases from the Surgeon-General's Office. These inspections should cover each of the four classes of attack specified.

INSTRUCTIONS FOR THOSE HAVING SYPHILIS (SYNONYM POX)

Syphilis is a deceptive disease. Usually it is a very mild disease in its early course, giving the person afflicted with it little or no distress. Because it is so mild its victim is likely to pay little attention to it and to fail to go to the trouble to have it thoroughly treated. But in spite of its mild beginning, syphilis is one of the very serious diseases because, if it is not properly treated, it may later attack vital parts of the body and cause the greatest damage. It may produce ugly deformities; destroy health and shorten life; produce blindness and at times cause insanity. These results do not occur so often that you should become panic-stricken because you have syphilis, but they are common enough to make it necessary for your safety that you make every effort to get rid of the disease. These accidents of syphilis almost never occur in the early course of the disease. When they happen, it is usually years after infection, in cases which have not been cured.

The earlier in its course syphilis is thoroughly treated, the better are the results; it is, therefore, of the utmost importance to your future health and happiness that you should have your disease promptly and skilfully treated. If you do this, there is little danger that you will have further trouble from it; and after a few years you can marry without danger to your wife or to your future children. Your medical officers will attend to treatment of your condition, but it rests on you to do your part. Unless you cooperate and live up to instructions, treatment cannot be carried out with the best results.

One of the difficult things about syphilis is that to cure it often requires a long time—two years or more. In two or three weeks after you begin treatment, you will not know from any symptom that you have syphilis, and you will, therefore, be tempted to neglect further treatment. This is the great mistake that many persons with syphilis make. To insure future safety, treatment must be continued long after all evidence of the disease has disappeared. For your own good, you must see to it that you do not neglect your treatment after the first few months.

Syphilis is a contagious disease, but spreads only by contact with the virus or poison. The parts of the body that most often carry the virus are the mouth and the genital organs (privates). In order not to spread the disease you must be careful in your associations with others. If you are careful, you are not dangerous to others.

Obey the Following Instructions:

If you have any sore on your genitals, no matter how small, or if you think you have syphilis, report to your medical officer. Do not under any conditions rely on the "blood medicines" that promise to eradicate syphilis, and do not be caught by advertising doctors—quacks—who try to get your money by promising to cure you quickly. Do not let druggists prescribe for you; they are not qualified to treat syphilis.

Do not hesitate to tell your doctor or dentist of your disease. Later in life if you get sick at any time, you should tell your doctors that you have had syphilis, since this fact may furnish a clue to the treatment on which your cure depends.

Live temperately and sensibly. Do not go to extreme in any direction in your habits of life.

Try to get a reasonable amount of sleep—eight hours is the amount needed by the average person. And as a safeguard to others, sleep alone.

You should not smoke or chew tobacco.

Absolutely do not use alcoholic liquors. All experience shows that drinking — even moderate drinking — is bad for syphilis.

Take good care of your teeth. Brush them two or three times a day. If they are not in good condition, have them attended to by a dentist. But when you go to him, tell him that you have syphilis.

Do not have sexual intercourse until you are told by your physician that you are no longer contagious. It will interfere with the cure of the disease, and it is criminal, for it is likely to give the disease to your wife.

You must not marry until you have the doctor's consent, which cannot be properly given until at least two years have passed after cure seems complete. If you do, you run the risk of infecting your wife and your children with syphilis.

Early in the course of syphilis, while it is contagious, the greatest danger of infecting other people is by the mouth. Because of this danger, do not kiss anybody. Particularly, do not endanger children by kissing them.

Do not allow anything that has come in contact with your lips or has been in your mouth to be left around so that anybody can use it before it has been cleaned. This applies to cups and glasses, knives, forks and spoons, pipes, cigars, tooth picks and all such things. It is better to use your own towels, brushes, comb, razor, soap, etc., though these are much less likely to contamination than objects that go in your mouth.

If you have any open sores—you will not have any after the first week or two, if you are treated—everything that comes in contact with them should be destroyed or disinfected.

To live up to these instructions will only require a little care until you get used to them; after that, it will be easy. If you do live up to them, there is a good prospect that syphilis will not do your health permanent harm nor cause injury to others; and you will have the satisfaction of knowing that, after your misfortune, you have acted the part of an honest man in your efforts to overcome it.

INSTRUCTIONS FOR THOSE HAVING GONORRHEA

Clap—a Dose—Chordee (Painful Erection)—Swollen Testicle—Gleet

Gonorrhea causes so much discomfort that, unlike syphilis, it is not apt to be overlooked or neglected in its early course; but the discomfort of gonorrhea disappears long before the disease is gone, and patients are therefore apt to discontinue treatment before they are well. In such cases, the disease persists indefinitely as a morning drop or as "gleet"; perhaps not even these symptoms may be present, and the patient may suffer no particular discomfort of any kind, and yet be exposed to serious accidents to health and be a source of danger to any woman with whom he has intercourse.

It is a serious mistake to regard gonorrhea lightly. Gonorrhea may occasionally be very mild in its symptoms, but if neglected painful early complications and, later, very serious ones are likely to occur. Common early complications of gonorrhea are chordee, inflammation of the prostate and bladder, and swollen testicle. Common later complications are gonorrheal rheumatism, gonorrheal disease of the heart, and stricture. These later complications are all serious troubles. In addition to the dangers to the patient, uncured gonorrhea—which may show as a gleet or a morning drop or not at all—is as contagious as an acute gonorrhea; so that for the protection of your wife you must get well. Gonorrhea is the commonest cause of sterility and serious diseases of the pelvic organs in women.

The time to cure gonorrhea easily is early in its course. The sooner proper treatment is begun, the sooner gonorrhea can be controlled and the less likely are complications. After gonorrhea has become chronic, its cure is extremely difficult. It is, therefore, very important that the disease should be properly treated early in its course and that the patient should cooperate with his physician in doing those things which facilitate the cure. Gonorrhea can be completely cured, but in its treatment the patient must do his part.

Obey the Following Instructions:

Persist in treatment until your doctor tells you you are cured.

Do not try to treat yourself.

Do not use a patent medicine or some "sure shot" that may stop the discharges, but will not cure you.

Do not let an advertising doctor—a quack—get your money, and do not let a drug clerk treat you.

If you have had gonorrhea and you suspect that it is not cured, report to your medical officer.

During the acute stages keep quiet, and take little exercise. As long as you have any discharge avoid violent exercise, especially dancing.

In order to avoid chordee, while the disease is acute, sleep on your side, urinate just before going to bed, and drink no water after supper.

Never "break" a chordee. To get rid of it wrap the penis in cold wet cloths or pour cold water on it.

Except at night, drink plenty of water—8 or 10 glasses a day.

Do not drink any alcoholic liquors; they always make the disease worse and delay its cure. Also avoid spicy drinks, such as ginger ale.

Do not eat irritating, highly seasoned, spicy foods, such as pepper, horse radish, mustard, pickles, salt and smoked meats or fish.

Always wash your hands after handling the penis, particularly in order to protect your eyes. Gonorrhea of the eyes is very dangerous; it will produce blindness if not at once treated, and the infection is easily carried to the eyes on the fingers.

Keep your penis clean. Do not plug up the opening with cotton or wear a dressing that prevents the escape of the pus from it. Wash the penis several times daily.

Burn old dressings, or put into a disinfecting solution.

Never use anybody's else syringe or let others use yours. While you are using a syringe keep it clean by washing it in very hot water, and, when you have finished with its use, destroy it.

Avoid sexual excitement. Stay away from women. Do not have intercourse. It will bring your disease back to its acute stage and it is almost sure to infect the woman. Sexual intercourse while you have gonorrhea is a criminal act.

You are likely to obey instructions while your gonorrhea is acute, because it causes so much pain. Persist in them after the pain is gone; by so doing you will prevent relapses, make your cure much easier and more certain, and expose no one else to the disease.

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SATURDAY, OCTOBER 20, 1917

THE TREATMENT OF EPIDEMIC POLIOMYELITIS WITH SO-CALLED SPECIFIC HORSE SERUM

The recent reports by Rosenow[1] and by Nuzum and Willy[2] on the treatment of epidemic poliomyelitis with the serum of immunized horses, for which excellent results are claimed, are of considerable interest. The horses were immunized with the coccus recently found by several observers in the central nervous system in epidemic poliomyelitis, and consequently the question of the exact relation of this coccus to poliomyelitis is again raised.[3] In both reports, it is asserted that the serum used has protective and curative powers with respect to the experimental poliomyelitis of the monkey produced by means of poliomyelitis virus, that is, suspensions in physiologic sodium chlorid solution of fresh or glycerinated nervous tissue from human beings that have died with this disease, or from monkeys experimentally infected. While the coccus with which the horses were injected unquestionably occurs in poliomyelitis, and frequently may be present in the so-called virus, its exact relations to the disease have not been made fully clear because thus far it has not been possible to produce poliomyelitis in the monkey by injections of this coccus in undoubted pure culture. But in spite of the lack of this essential link in the chain of evidence necessary to establish that the coccus is the cause of the disease, it must be acknowledged that if the serum of horses immunized with the coccus protects against and even cures poliomyelitis in the monkey, an adequate experimental basis for a thorough trial of such serum in the treatment of the human disease certainly has been provided. It is clear, however, that the results of further experiments on the action of the serum in monkey poliomyelitis are required before the claims in favor of its protective and curative powers may be regarded as fully established. At this point it may be stated also that the assertion by Nuzum and Willy that a coccus quite like the one found in the central nervous system in poliomyelitis occurs regularly in the cerebrospinal fluid of poliomyelitis patients, not being in accord with the results obtained by other observers, cannot yet be accepted without confirmation from other sources.

Turning now to a brief consideration of the recorded results from the use of serum produced as indicated, we find that Rosenow treated fifty-four patients with nine deaths, but that six of the patients that died were moribund when the serum was injected, "and hence should not be included as treated cases." This would leave a death rate of 8 per cent. Sixteen of these patients were in the preparalytic stage, and all recovered. Of twenty-three patients in the same epidemic, nine died (35 per cent.). The effects of the serum in the individual case are often striking, at least apparently, because the symptoms soon subside, paralysis, for instance, being arrested and sometimes disappearing completely if in the early stages. As rapid improvement may occur spontaneously in poliomyelitis, as the diagnosis in the preparalytic stage must be difficult (sixteen of the patients treated with recovery are said to have been in this stage), and as it is impossible to form any opinion whether the treated and untreated patients that were the subject of this report are fairly comparable, it evidently is necessary, as Rosenow himself says, that many more patients be treated before conclusions can be drawn as to the exact value of the serum he used.

Nuzum and Willy have treated 159 patients, eighteen of whom died (11.3 per cent.). Of 100 untreated patients admitted during the same period of time to the same hospital, forty-five died (45 per cent.). We lack, however, a more detailed comparison as to the ages, severity of attack and general condition of the patients composing the treated and untreated groups. We have no information whatever in regard to the principles of selection followed in forming these two groups; consequently it is difficult to determine how much importance may be assigned to the apparently very favorable figures given in this report. These observers also emphasize the rapid general improvement commonly seen after the injection of the serum, there being in many cases a critical drop of temperature.

In conclusion, it may be said that the injection of horse serum, in the manner described with detail in these two reports, appears to be quite harmless in poliomyelitis; that the authors of the reports are deeply impressed with the apparent good effects of the serum; that their figures appear to show a great reduction in the death rate, but that the figures are probably not to be accepted without the reservation that they may seem more favorable than is actually warranted. Further observations will be awaited with much interest. We hope it may be found, and quickly, that a potent, specific antipoliomyelitis

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1. Rosenow, E. C.: The Treatment of Epidemic Poliomyelitis with Immune Horse Serum, The Journal A. M. A., Sept. 29, 1917, p. 1074.
2. Nuzum, J. W., and Willy, R. G.: Specific Serum Therapy of Epidemic Poliomyelitis, The Journal A. M. A., Oct. 13, 1917, p. 1247.
3. The Bacteriology of Poliomyelitis, editorial, The Journal A. M. A., April 14, 1917, p. 1122.

serum, protective and curative, has been discovered. The suggestion may be ventured that even if it eventually should be found that serum produced as described in these reports has little or no specific effect on the essential cause of poliomyelitis, its use may be followed by favorable results due on the one hand to general nonspecific effects such as follow the intravenous injections of foreign proteins, and on the other hand to its action, specific in nature, on the coccus used in the immunization, which may be a secondary invader of no little importance in poliomyelitis.

THE QUALITY GRADES OF PROTEINS

It is beginning to be recognized by all students of nutrition that proteins from different sources may have unequal nutritional value. This is exhibited, for example, in the unlike efficiency of different proteins in sparing the body from a loss of tissue protein; it is likewise manifested by the striking differences in growth on diets alike in every respect except the character of the proteins they contain.

The reason for these biologic differences is now known to lie in the amino-acid content of the different proteins. Those albuminous compounds, which furnish the essential amino-acids in proportions approximating the ideal as determined by the body's synthetic needs, are most economical from the standpoint of nutrition. As a rule, though by no means in every instance, the proteins of meat, fish, eggs and milk exhibit a superior value as conservers of body protein when they are contrasted with the proteins of the widely consumed cereal grains. It is for this reason that Graham Lusk has proposed the grading of protein products offered for sale. He has advocated the sale of food by calories and not by pounds as the foremost step in true food reform; but in addition to this he suggests the indication of quality distinctions.[1] For instance, such proteins as will replace body protein part for part might be classified as Group A. Gelatin has practically no power to replace body protein and is therefore put by Lusk in Grade D. Wheat contains a mixture of proteins of Grades A and D in which those of Grade A predominate, so that wheat may be classified as having a protein value of Grade B; whereas corn, from analogous reasoning, may be said to have a protein value of Grade C. Lusk's plan is conceived by him to work out as follows: An ordinary dietary with a liberal allowance of protein contains 15 per cent. of its calories in that form. A can or package of food containing 15 per cent. of its calories in protein should have, Lusk proposes, a star placed with the letter determination of the grade of protein. For example, the label on a can of corn might read: "This can contains *x* calories, of which *y* per cent. are in protein of Grade C."

The initiation of a plan such as that here developed would do scarcely more for man than has been attempted for our domestic animals during the past few years. Concentrated cattle feeds are commonly sold in containers plainly stamped with the proximate analysis of their contents, so that the addition of calorific values and quality labels would mean merely the extension of an already accepted principle in the feed industries. Hart and Humphrey[2] of the Wisconsin Agricultural Experiment Station have, however, recently pointed out certain practical objections to so much of the food classification scheme as has been reviewed above in relation to the quality of proteins. A few years ago it would scarcely have been anticipated that different proteins might exhibit supplementary values toward each other. The researches of McCollum, Osborne and Mendel, in particular, have made clear how an "incomplete" protein may be supplemented by a small quantity of another protein so as to produce a more perfect combination than either portion alone could exhibit from the standpoint of nutritive efficiency. It is further doubtless possible to select a combination of two "incomplete" proteins so that the mixture will afford all of the amino-acids of an ideal diet. In such an instance two proteins of Lusk's inferior Group C might yield a very satisfactory ration.

This is essentially what Hart and Humphrey have experimentally demonstrated in actual feeding experiments on a large scale on cattle. Thus they found that with corn stover and corn meal as the basal ration there were very appreciable differences in the efficiency with which certain protein concentrates could supplement such a ration for milk production. Gluten feed, for example, was measurably inferior to casein or milk powder.[3] In the proportions used and with corn stover as the roughage, none of several concentrates tested was able to maintain the animals in nitrogen equilibrium. Gluten feed was particularly unfit. But when the roughage was changed from corn stover to clover hay, the corn kernel being maintained as the basal grain, the inefficiency of the gluten feed as a supplement disappeared.[2] Evidently, Hart and Humphrey write, the proteins of clover hay will supplement the proteins of gluten feed in a much more efficient manner than will those of corn stover. These results, they continue, emphasize in a striking way the limitations of any classification of natural food in respect to the efficiency of their proteins, based on the determination of such nutritive value in a single food material or single mixture. When they are used in mixtures, as they generally are, the efficiency may be very greatly modified by the supplementary materials. This applies to human as well as animal nutrition.

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[1] Lusk, Graham: Elements of the Science of Nutrition, Philadelphia, W. B. Saunders Company, 1917, p. 562.

[2] Hart, E. B., and Humphrey, G. C.: The Relation of the Quality of Proteins to Milk Production, III, Jour. Biol. Chem., 1917, 31, 445.

[3] Hart, E. B., and Humphrey, G. C.: Jour. Biol. Chem., 1916, 26, 457.

Before condemning any particular type of protein or protein-rich food, it will be well to bear in mind that our dietaries usually are, or at any rate ought to be, drawn from varied sources unless we are certain of the adequate nutrient efficiency of the proteins supplied. The proposed classification of the proteins of foods into the Groups A, B and C, according to their physiologic value, has significance, as Hart and Humphrey insist, only so far as the individual food materials form the sole article of diet. In a mixture, Class A would probably always improve Class C; but it is possible to conceive of Class C proteins from independent sources making an efficient mixture. What applies to proteins is applicable in a somewhat comparable manner to other deficiencies in single sources of food. A suitable source of protein may lack desired inorganic elements or needed vitamins. Adequate nutrition is coming to be recognized more and more as a scheme dependent on the rational selection of suitable combinations of foods whereby their supplementary relationships can be duly exhibited.

THE IMPORTANCE OF FURTHER STUDY OF THE DIPHTHERIA GROUP OF BACTERIA

After the discovery by Loeffler and Hoffmann of an organism now known as *B. hoffmannii* or the pseudodiphtheria bacillus, morphologically identical with the diphtheria bacillus but seldom pathogenic and a nonfermenter of glucose, it was soon found that there was a whole group of diphtheroid organisms with slight morphologic and cultural differences, and identical with neither the true diphtheria bacillus nor *B. hoffmannii*. The intensive study of this group has never attracted investigators as it deserved, probably because of the general opinion that diphtheroids possess slight pathogenic powers and generally are secondary invaders. This opinion may be due to the fact that these organisms are so widespread, occurring in the air, in milk, and apparently at some time or other in nearly every organ of the body, normal as well as diseased. But their possible relation to Hodgkin's disease as indicated by the discovery of a diphtheroid (*B. hodgkinii*) in the lymph glands of this disease (Bunting and Yates and others) has reawakened interest in the whole group. In a recent review of the entire literature on diphtheroid organisms, Mellon[1] has conclusively shown that at times they may be the cause of various acute inflammatory processes. In many cases they are the only organisms isolated from such processes, and injection of suspensions of the killed organisms often seem to exert a marked benefit on the course of the disease. He cites cases, due to diphtheroid infection, of "tonsillitis, chalazion, acute and chronic purulent otitis media, arthritis, caseous and ulcerative lymphadenitis in cattle, bronchopneumonia, interstitial pneumonia, ulcerative cystitis, and an epizootic of infective abortion in guinea-pigs." He finds, too, that the difficulties encountered in correlating the work of various observers, and the multiplication of names and types are due not so much to differences in the bacteria themselves as to lack of uniformity in the mediums used in growing them and of well controlled immunologic studies. In many cases, reactions have been recorded by growth on glucose broth only. By the use of ten fermentable substances and a careful titration of the amount of acid formed in a definite period of time, and by the extensive study of immunologic reactions, especially complement fixation, Mellon thinks it is possible to divide diphtheroids into seven groups, four of which contain the greater number of saprophytes and three the greater number of pathogenic organisms, though any of the subgroups may become pathogenic under favorable conditions. One strain he found particularly interesting because of its pleomorphic character; under certain conditions of growth it assumed the form of a diplococcus, and it was only with great difficulty that it was brought back to the bacillary form. This relationship to the streptococcus was carried out in the immunologic reactions also, the relationship to some strains of streptococci being closer than to some strains of the diphtheroids.

The need for the further investigation of this particular sort of phenomenon is suggested also by Heinemann[2] in his report of a strain of diphtheria bacillus, otherwise typical, which on growth in glucose veal broth assumed a coccus form identical in morphology with the coccus form of Mellon's pleomorphic diphtheroid. This organism, however, could be easily reconverted into bacillary form by growth on Loeffler's blood serum.

THE LUNG PHENOMENA IN ANAPHYLAXIS

The phenomena of anaphylaxis have begun to play a prominent part in various departments of medicine. The anaphylactic nature of so-called serum sickness is now generally recognized, as it occurs as a direct consequence of the injection of a foreign protein into a human being. The analogy between asthma and anaphylaxis has been clearly set forth by Meltzer,[3] among others, who points out that in both conditions the symptoms consist in a tonic stenosis of the small bronchioles of peripheral origin. The connection of hay-fever with anaphylaxis is one of great likelihood, and current investigation is being guided in the direction of such probability. Zinsser[4] has remarked that there are a number of other clinical conditions which are less obviously anaphylactic in nature, but in which we have many good reasons for attributing an important part of the etiology to a state of hypersusceptibility. Thus the peculiar so-called "idiosyncrasies" observed in many people who suffer from urticarial skin rashes, gastro-intestinal difficulties, and even severe systemic illness after certain varieties of food seem to depend on an acquired or possibly inherited hypersusceptibility to the particular proteins involved, which, at certain times of abnormal gastro-enteric conditions, can get into the circulation in small quantity. It is not impossible, furthermore, that such unfortunate cases as the severe forms of angioneurotic edema, which seem, at least in part, to be associated with gastro-intestinal disturbance, and which may be transmitted from mother to child, have their root in anaphylaxis. For this, however, we have only inference based on clinical observation.

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[1] Mellon: Jour. Bacteriol., 1917, 2, 81.

[2] Heinemann: Jour. Bacteriol., 1917, 2, 361.

[3] Meltzer, S. J.: Bronchial Asthma as a Phenomenon of Anaphylaxis, JOURNAL A. M. A., 1910, 55, 1021.

[4] Zinsser, H.: Infection and Resistance, New York, 1914, p. 433.

For the more accurate experimental study of the manifestations of anaphylaxis we are still restricted to observations on sensitive animals. In order to unravel satisfactorily the problems of clinical medicine in which the possibility of anaphylaxis can be considered, it is highly essential to continue the intensive investigation of the more purely experimental aspects of the subject. In some species, notably the very sensitive guinea-pig, the respiratory symptoms are the most striking feature of the clinical picture of anaphylaxis. During the later stages little or no air enters the lungs, although the animal makes violent respiratory efforts. This is due to a tetanic contraction of the small bronchioles which practically occludes the air passages. The conspicuous noncollapsible expansion of the lungs after death is due to the imprisonment of the air in the alveoli by the contracted musculature of the small bronchioles.

In the Department of Bacteriology and Experimental Pathology of the Leland Stanford Jr. University, Manwaring and Crowe[5] have found, through the study of isolated anaphylactic lungs by perfusion methods, that there are three types of pulmonary anaphylactic reaction, namely: (1) bronchial anaphylaxis, or the spasmodic contraction of the bronchial musculature, unassociated with recognizable changes in the pulmonary blood vessels; (2) vascular anaphylaxis, or the spasmodic contraction of the pulmonary blood vessels, usually accompanied with edema. The vascular reaction is usually followed by a mild bronchial reaction; (3) pseudo-anaphylaxis, or the plugging of the pulmonary blood vessels with thrombi and agglutinated corpuscle masses. Despite the seemingly technical character of such results, it is through investigations of precisely this sort, defining the mechanism underlying some of the conspicuous symptoms of anaphylaxis, that the understanding essential to progress in rational clinical therapy is to be derived.

Current Comment

HELPS TO THE SCOFFER AT FOOD VALUES

It is often said that necessity is the mother of invention; but necessity is also a good teacher in many other ways. In times of plenty we may be oblivious to the needs of the moment, whereas we soon learn to count the cost when "every little helps." Only a short time ago the earnest student of nutrition and dietetics was perenially twitted with the humor of the man who smilingly insisted that he wanted food, not calories. But times have changed, and the jokes about book learning and scientific feeding are replaced by an earnest desire for education in the tenets of nutrition. As Professor Bevier[1] of the Department of Household Science at the University of Illinois has aptly expressed the situation, with the shortage of food and the demands for saving it, there has come even to the mind of "the people" their helplessness because of their ignorance of food values. The people are writing to Washington, to the agricultural colleges, to anybody and to everybody for help in saving food. In response to this demand a great variety of helps to the housewife are appearing. Mr. Hoover's instruction card and the government devices are variations of lessons in food values. Every one understands perfectly that four quarters may take the place of one dollar in buying food, but many people cannot tell how many eggs at 40 cents a dozen may be used to replace in food value round steak at 25 cents a pound, or how to substitute for a quart of milk. It is easy even now to see that the term "food value" is beginning to receive respectful attention, and that way lies the basis for wise buying of food. War tends to make kindred of men. We can forgive the erstwhile scoffer, and we urge him to satisfy his newly acquired curiosity as to food values by consulting a timely series of well edited bulletins on "How to Select Foods," which the United States Department of Agriculture has lately put at the disposal of the public without cost.[2]

THE DANGER TO MUNITION WORKERS FROM TRINITROTOLUENE

Trinitrotoluene, or T. N. T., as it is commonly called, has been increasingly used abroad as a substitute for picric acid as a filler for shells, and is now used in America for that purpose. It has a lower melting point than picric acid, and is more stable; it is an explosive of the strength of nitroglycerin, and is manufactured by nitration from pure toluene. That it is dangerous to the human system we know from reports of necropsies in cases of fatal poisoning among trinitrotoluene workers, published recently in England and America; from the recent studies of cases of illness among trinitrotoluene workers in England by Panton,[1] and from Alice Hamilton's[2] study of four or five plants in America in 1916 in which she found 703 cases of poisoning, with thirteen deaths. In the manufacture of trinitrotoluene itself there is little danger to the worker, the process being carried out in closed retorts. But in filling the shells with the molten material, the workers are exposed to the fumes; and in chipping off the solidified trinitrotoluene from the top of the shells and boring holes in them for the detonator, they are exposed to the yellow dust. Occasionally symptoms due to the irritant action on the mucous membranes are observed, such as epistaxis, smarting of the eyes, constriction of the throat, and dry cough with a yellow bitter sputum. The toxic symptoms, like nausea, vomiting, anorexia, jaundice, mental depression, blurred vision and transient peripheral neuritis, are probably due to the absorption of the fumes and dust through the respiratory and the digestive tracts and especially the skin. The action of the poison on the liver seems to be marked. At necropsy the liver shows the most striking changes, and of the thirty-four cases of illness among the workers Panton studied, twenty-eight were cases of toxic jaundice. The microscopic study of the liver shows fatty changes of the liver cells, and in some cases increased bile duct proliferation, with infiltration of small lymphocytes around the ducts. Further, Panton examined the blood of a hundred apparently healthy women in a trinitrotoluene factory, and found the serum of twenty to be bile tinged. He suggests that even in the absence of symptoms there may be slight damage to the liver in these cases. The blood and blood-forming organs also are probably affected, for eight of the thirty-four patients showed anemia. This anemia Panton regards as of the aplastic type, that is, an anemia in which the number of the red cells is reduced while their form remains unchanged. He thinks the anemia is due to a destruction of the red marrow; and though rare among trinitrotoluene workers, it seems to be always fatal. The evidence on this point is still fragmentary, and needs for confirmation a careful study of the blood in more cases of poisoning, and further animal experiments.

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[5] Manwaring, W. H., and Crowe, H. E.: Types of Anaphylactic Reaction, Proc. Soc. Exper. Biol. and Med., 1917, 14, 173.

[1] Bevier, Isabel: An Experiment in Teaching Food Values, Jour. Home Economics, 1917, 9, 415.

[2] These are issued under the editorship of Caroline L. Hunt and Helen W. Atwater as Farmers' Bulletins. They are available for free distribution on postal card request to the Department of Agriculture at Washington.

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[1] Panton: Effect of Trinitrotoluene on Blood, Lancet, London, 1917, **2**, 77.

[2] Hamilton, Alice: Trinitrotoluene Poisoning, Med. and Surg., 1917, **1**, 761.

PRIMARY PHLEGMONOUS GASTRITIS

Within the last few years the subject of phlegmonous gastritis has been investigated from various points of view, and reports of cases of this disease are now not infrequent. It would seem that the former lack of familiarity with the condition was due not wholly to its rarity, but in part to failure of recognition. The number and completeness of recent reports serve not only to stimulate the general interest in the subject, but also to increase greatly our knowledge of its various phases. Thus it now seems clear that the disease unquestionably belongs among the numerous manifestations of streptococcal infection. Phlegmonous gastritis may be superimposed on a chronic ulcer or carcinomatous process in the stomach, and in such case it may become the immediate cause of death. Of great interest are the cases in which the infection follows or accompanies an acute streptococcal process elsewhere, and especially noteworthy are the comparatively few cases in which the process in the stomach is the only focus of infection as far as the examination discloses. It is the latter group of cases that is most baffling; here the mode of entrance of the streptococci is often a matter of conjecture. Emge[1] described a case of this kind, but makes no suggestion as to the route by which the infection may have taken place. According to Emge, the streptococcus is the sole infecting organism in 70 per cent. of the reported cases of primary phlegmonous gastritis, and in the remaining 30 per cent. it is associated with the staphylococcus, the colon bacillus or the pneumococcus. The chief associated and probably predisposing conditions are alcoholism, dietetic errors, and food and drug poisoning. Streptococcus gastritis occurs five times more frequently in the male than in the female sex, and so far half of the cases have been found in laborers. Rixford[2] reports four cases, three of which occurred during the epidemic of streptococcal sore throat in San Francisco last winter. In such cases there seems no difficulty in accounting for the source of infection. The symptoms are sudden, severe from the onset, with a burning sensation in the stomach which is not relieved by drinking fluids, persistent vomiting, fever, not high at first but gradually or rapidly rising to 102 F. and occasionally to 105 or 106, and early prostration. The disease runs a rapid course, from three to ten days, and is usually fatal. The stomach wall is much increased in thickness and feels boggy, the mucosa is pale and swollen, and the folds are absent or indistinct. The mucous membrane is generally intact, but may be perforated or even entirely necrotic if the process has continued for some time. The submucous coat is greatly increased in width, often to the extent of half an inch, and firm, while the serosa is generally unchanged, but may be covered with a film of fibrin. There is an infiltration of leukocytes in the mucosa, but ordinarily the glands appear normal. There is a huge exudate of fibrin and leukocytes, both mononuclear and polymorphonuclear, in the submucosa, which is the part chiefly affected. The muscularis may be swollen and infiltrated with round cells, although generally little changed. As indicated, streptococci are easily demonstrable in the exudate.

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[1] Emge: Tr. Chicago Path. Soc., 1913-1915, **82**.

[2] Rixford: Ann. Surg., 1917, **66**, 325.

Mortality Rates Among Negro Babies.—In analyzing the infant death rate for 1915, it was ascertained that while the infant death rate for New York City was 98.2 per thousand births, the infant mortality of the colored race was 202, as against 96.2 for the whites, a difference of 110 per cent. The health department then started an educational campaign, instituting intensive work along the lines usually found effective in reducing the infant death rate, and has just made public the results. While the negro death rate among babies in 1915 was 202, in 1916 it was 193.3 per thousand children born, and for the first six months of 1917, the rate was still further reduced to 180 per thousand births.

Medical Mobilization and the War

THE FULL SACRIFICE

♣ ♣ *Our country is at war. Men are called according to their talents and training to enter the different branches of the service. Physicians occupy an important place, and this applies particularly to those of special training. No choice has been left to youth because its strength and enthusiasm are called by the state. Men of maturer age have the glory of choice. They choose to serve or to let others serve.* ♣ ♣ *For the moment the enemy is at a distance, and those without imagination see him always there. Because disaster is still without our gates we feel secure. Many, therefore, are putting off the day of service. Some hesitate and question: a few even bargain.* ♣ ♣ *To relinquish individual liberty causes not a few to hold back. Yet those who have made the decision and are now doing the duties assigned to them as well as they may, cherish as dearly as the heart can the liberty to be with wife and family, to continue to engage in private or public practice, to carry on their investigations, to teach in hospital or medical school, and to provide for their old age.* ♣ ♣ *The right to these blessings of peace belongs to no one man. Some there are, however, who by actions or words seem to claim a right to these blessings over their brothers.* ♣ ♣ *No work is too trivial in a cause so sacred. Some have thought otherwise. But whoever is above the work which naturally falls to him, and works, if at all, only with reservations, misses the finest inspiration that duty fully done can supply.* ♣ ♣ *He who consciously or unconsciously allows self to decide in this matter is not to be envied. The spirit of service, which, if allowed, would almost transfigure him, he has failed to grasp. Greater peace can no man have than he who has made the full sacrifice.*

Commissioning of Medical Reserve Officers

The chief of staff of the Army has given instructions to the Adjutant-General that no more commissions are to be issued in any branch of the military service until a complete check is made of the number of commissioned reserve officers on the rolls. It is expected that this will hold up all the appointments for at least three, and possible four, weeks. Hence physicians who have applied for commissions must not be disappointed if they do not hear regarding them for the period mentioned.

Number in Medical Reserve Corps

On October 12, there had been recommended for commissions in the Medical Officers Reserve Corps approximately 17,500 physicians. About 1,200 of these finally declined to carry out their declared intention to accept commissions, and a few over 200 officers have been discharged for one cause or another, most of them because of physical disqualifications. Slightly over 13,500 have accepted their commissions. This number does not include, of course, the officers of the regular medical corps and of the medical corps of the National Guard, over 2,000 in all.

During the week ending Oct. 13, 1917, there were recommended for commissions in the Medical Reserve Corps 402 physicians, the proportion being seven majors, eighty-nine captains and 306 lieutenants.

Competition Increases

Capt. S. T. Millard, M. R. C., U. S. Army, Topeka, Kan., writes that Topeka has a better record than Sioux City (The Journal, Oct. 6, 1917) so far as physicians volunteering for the Medical Reserve Corps is concerned. With a population of 50,000 and eighty physicians, twenty-four physicians have volunteered for service.

Conference of Examiners for Medical Reserve Corps

At a meeting of the examiners for the Medical Reserve Corps, held at Fort Benjamin Harrison on October 8, a national association was formed with the title of the National Association of the Presidents of the Boards for the Examination of Applicants for Appointment in the Medical Reserve Corps of the United States Army. The following officers were elected: president, Capt. George N. Kreider, Springfield, Ill.; vice president, Major Robert D. Maddox, Cincinnati; secretary, Major Fred W. Bailey, St. Louis. An adjourned meeting will be held at the Congress Hotel, Chicago, Monday, October 22, at 3 p. m.

Creating a Dental Corps in the Army

By concurrence of the House in Senate amendments to House Bill 4897 in the closing hours of Congress, October 6, a Dental Corps has been created in the Army, corresponding to the Medical Corps, the membership of which shall have the rank, pay, promotion and allowance of officers of and shall be of the corresponding grade of the Medical Corps. Chairman Dent of the House Military Committee explained that the House bill relating to members of the Dental Service of the Army corresponded to the section of the national defense law which waived the former requirement of the law of five years' previous service in the Army as lieutenant before a member could be promoted to the next higher rank, and so on for the higher grades. The Senate practically adopted the House bill with the material amendment that a Dental Corps be created in the Army. Heretofore, the highest rank a member of the dental service could attain was that of major, and it would require twenty-four years of service before he could obtain that rank. At present the highest officers in the Army dental service have the rank of captain.

AMERICAN ASSOCIATION OF MILITARY SURGEONS

(*Continued from page 1273*)

Meeting at Fort Benjamin Harrison

The second day of the convention was opened by the president, Surg.-Gen. Rupert Blue. The first speaker of the session, Col. T. H. Goodwin, British Medical Service, dealt with the subject of the "Personnel of the British Army." The current of the thought in his address was sportsmanship, as illustrated by a favorite phrase of Colonel Goodwin's—*esprit de corps*. This he illustrated by many personal experiences with his troops. An officer and three of the enlisted sanitary personnel were in "No Man's Land" (called by Colonel Goodwin "Our Land," now that the British Army is gaining with every "show"), assembling the wounded, when a gas alarm sounded. This detachment was assisting in a particularly bad case at this time, and the wounded officer had no mask. It happened that between the officer and his three assistants there were only two masks all together. After each had refused, even when ordered to don a mask, one was finally put on the wounded man. The result was that later the wounded man was brought in alive, but the officer and his three men were found dead. That is playing the game, even though it is bad from a military standpoint, when four good men are lost to save one wounded, who may be permanently out of the war. Colonel Goodwin labeled as malicious lies the stories that the British Army is killing the wounded in the conquered trenches. "Quite the contrary," he said; "we make particular efforts to get them back to the dressing stations behind our lines." He said, "It will be this *esprit de corps*, which is such a dominant characteristic of the English-speaking people, that will win in this war, and never again will these peoples be separated, so long as the world lasts."

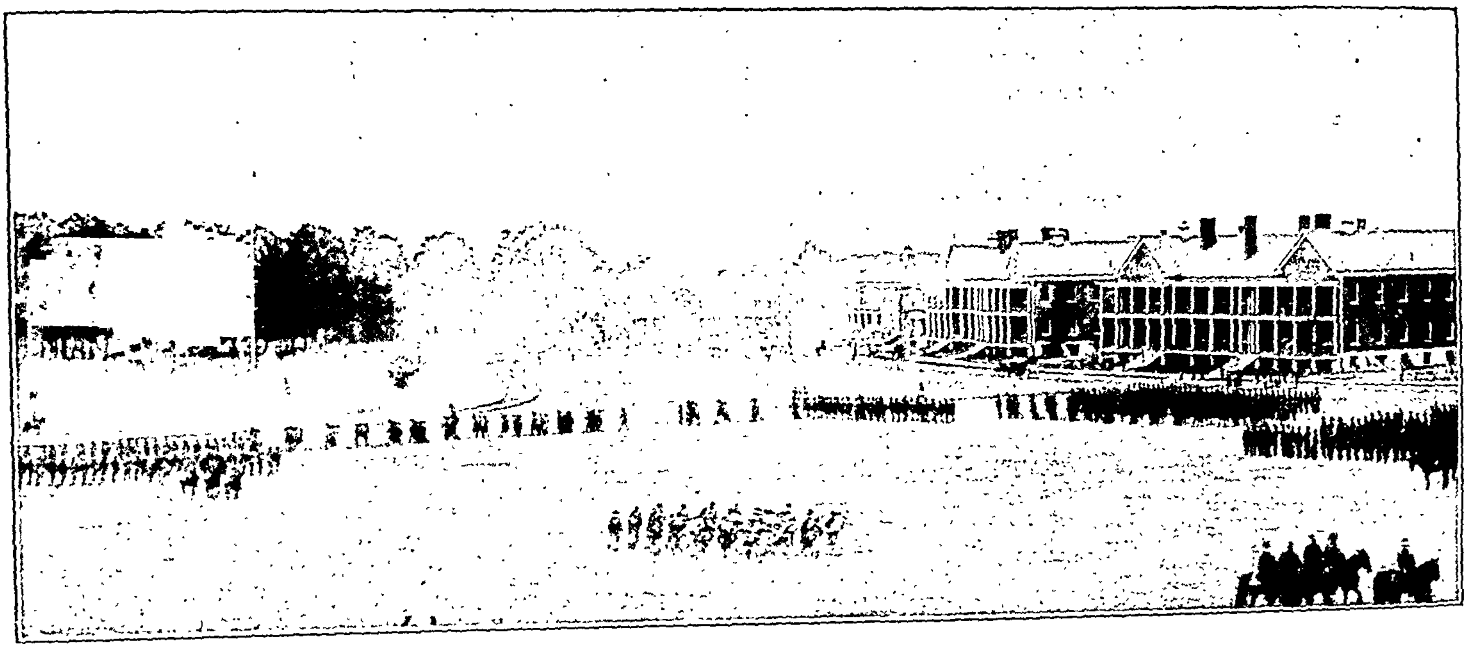
The next speaker, Capt. J. Gilmour, R. A. M. C., a veteran of many campaigns, though a young man, addressed the convention on the "Transportation of the Wounded on the Western Front." The address was extremely technical, but interesting to military men. The comparison of the British methods with those of our own Army shows that the United States has followed the British Army Sanitary Service Manual quite closely in writing its own. The scheme is illustrated by this outline: (1) Man transportation, by which the wounded man is carried on the bearer's back, or other scheme to get him back in the quickest and safest manner possible; (2) man transportation, with the use of litters and other apparatus not on wheels; (3) conveyances on wheels, drawn by men; (4) on animals' backs, mules, horses, etc.; (5) conveyances on wheels drawn by animals; these have been largely supplanted by motors; (6) railroad transportation; (7) water transportation. Captain Gilmour modestly remarked on the dryness of his topic, but followed the example of the other speakers, with a story of a personal experience.

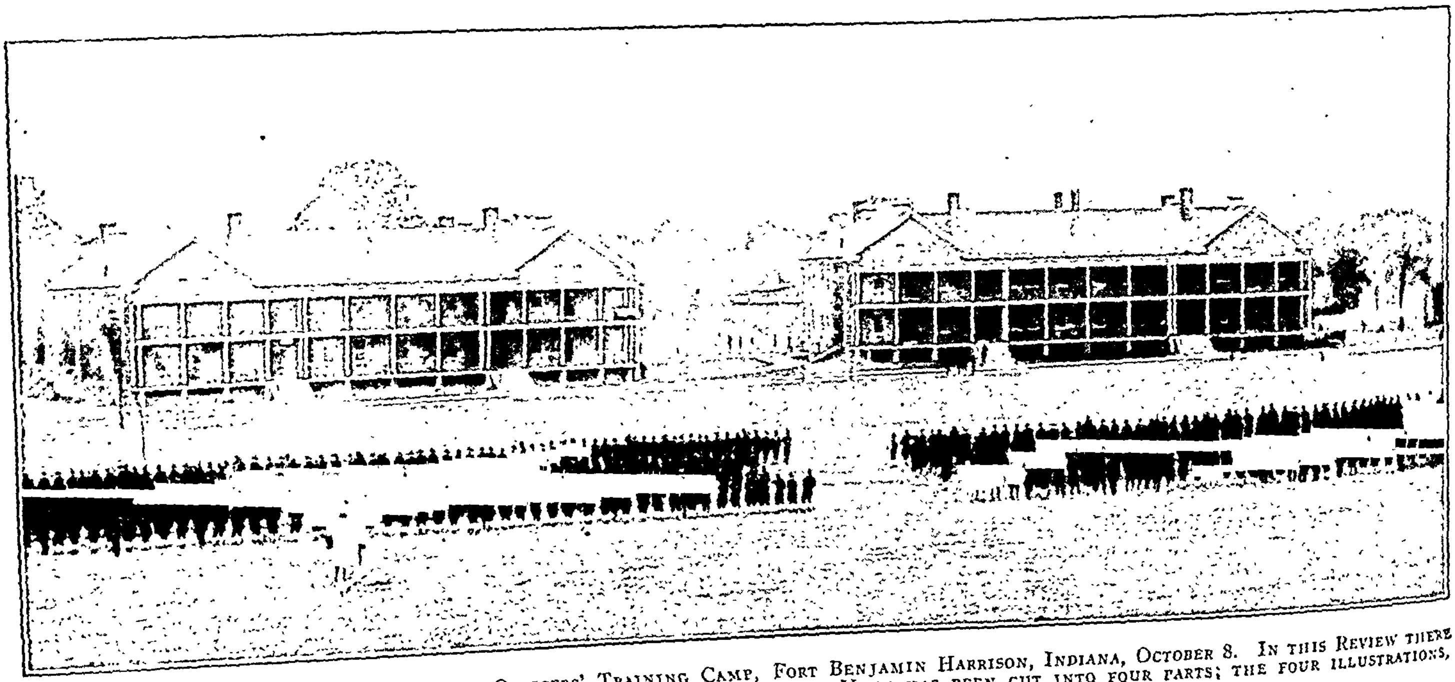
Prisoners were coming in after a particularly hard "show." Among them was a German officer. "I asked this officer, who was down on his luck and who spoke perfect English," said Captain Gilmour, "what he thought of the British charge. In reply, I learned that it was not much. He told me that our artillery fire was only fair. I finally asked him what he thought of the fact that the Americans had come in. He straightened up and said, 'That's bad. Now we have brains against us.'"

The "medics" of the Medical Officers' Training Camp took the point personally, and cheered wildly.

ADDRESS OF SURGEON BAINBRIDGE

Surg. William Seaman Bainbridge, U. S. Navy, spoke on "Reconstruction of the Crippled," and applied the subject to the reconstruction of the nations after the war. "I believe," said the speaker, "that the entrance into the war of my country means a better civilization for the future. I know that the people of Germany are heart and soul behind the kaiser in the war, and that the German women would drive the men back to the battle front if they showed any signs of weakening."





Parade and Review of the Medical Officers' Training Camp, Fort Benjamin Harrison, Indiana, October 8. In this Review there

Permanent Barracks. In order to permit reproduction this Panoramic View has been cut into four parts; the four illustrations,

FIELD MANEUVERS

The afternoon was devoted to practical demonstrations of field maneuvers by sanitary troops. These were explained by Lieut.-Col. M. A. W. Shockley, M. C., U. S. Army. The maneuvers were in the form of a terrain exercise, in which a position of opposing forces was assumed, and casualties estimated and placed on the terrain and tagged. Under these assumed conditions the surgeons of the various combatant organizations were required to issue orders and manage their organizations and establishments in accordance with the principles of sanitary tactics. The sanitary troops had established the necessary regimental aid stations, dressing stations, ambulance stations and field hospitals.

The convention, about 2,000, hiked to the trenches with the U. S. Army instructors and the distinguished guests from our

Allies. The dressing stations were established in ravines, in shelter, at the head of the sanitary line to the evacuation hospital. These stations consisted of tent shelters, to which the wounded were brought by the sanitary privates on litters, and in which they received first aid. From these stations the wounded were transported by mule ambulances to field hospitals, where they were given temporary treatment, consisting mainly of dressing adjustment. On account of the necessity of the mobile units accompanying the commands to which they were attached, the near approach of the enemy required that the wounded be evacuated to the base hospital as rapidly as possible. This movement was executed in a rapid manner; and the patients were transported to the railway hospital train brought from the base to a nearby station.

The visitors not only obtained a vivid picture of the work as done in actual battle, but also had the advantage of most interesting explanation by Lieutenant-Colonel Shockley.

ADDRESS BY COLONEL DIRCLE

In the evening, Col. Charles Dircle of the French Army exhibited moving pictures of the "Medical Service on the Western Front." It was an inspiration to hear him speak of France. His reverance for his country and his devotion to it were stimulating and worthy of emulation.

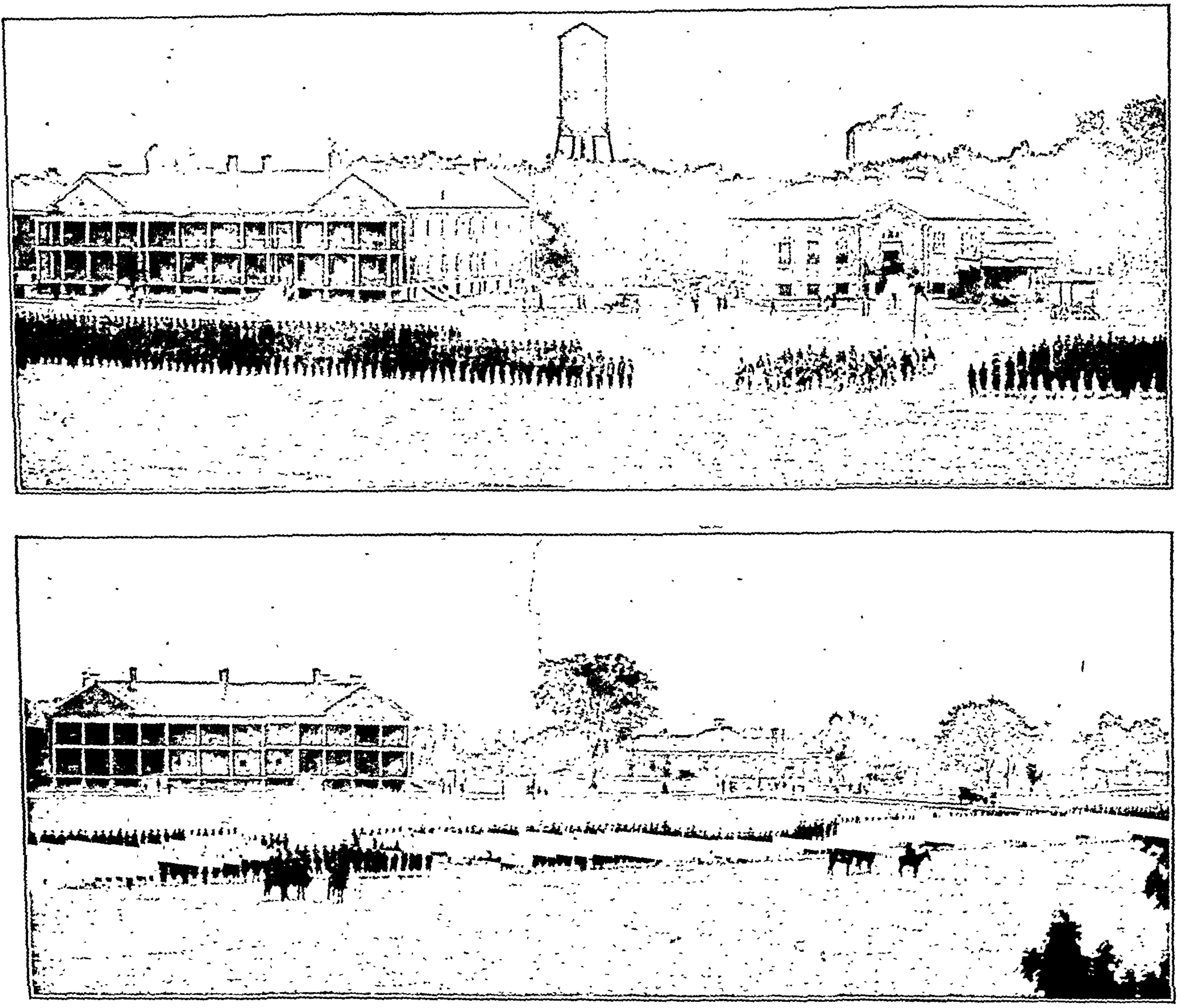
ADDRESS OF MAJOR SALMON

Major Thomas H. Salmon, M. R. C., U. S. Army, detailed to the Surgeon-General's Office, illustrated his address on "War Neuroses." "I think," said Dr. Salmon, "that shell shock is purely a neurosis and has no organic basis, but is founded on fear or horror. Early in the war these patients were treated in England by pampering and rest, with an insignificant number of recoveries. Since the establishment of the definite etiology, suggestion, persuasion and hypnosis have restored many to the battlefields." By elimination, wounded men and prisoners being used for the study of the condition, it was found that only twelve definite cases of shell shock had occurred among 60,000 prisoners. A correct deduction is simple.

The convention was closed on the third day by an interesting address by Col. T. H. Goodwin, British Medical Service, followed by the installation of the following officers: president, George A. Lung, Medical Director of the Navy; vice presidents, Lieut.-Col. Henry Allers, N. G., New Jersey; Brig.-Gen. Henry P. Birmingham, M. C., U. S. Army, and Asst. Surg.-Gen. J. S. Kerr, U. S. P. H. S.; secretary, Col. Edward Munson, M. C., U. S. Army (reelected), and treasurer, W. C. Rucker, U. S. P. H. S.

RESULTS OF THE MEETING

The holding of this meeting at one of the great officers' instruction camps has aided materially in impressing on the visitors the great need of thorough application for the attainment of technical knowledge of military affairs. The students in the medical camp also have profited immensely by personal contact with the guests, many of whom have been in actual campaigns within the war zone.



WERE ASSEMBLED OVER 1,200 MEDICAL OFFICERS AND ABOUT 2,000 ENLISTED MEN OF THE MEDICAL DEPARTMENT. IN THE BACKGROUND ARE THE
THEREFORE, MUST BE REGARDED AS A CONTINUOUS PICTURE, READING FROM LEFT TO RIGHT.

NEWS OF THE CANTONMENTS

[*From Our Special Correspondents*]

Thirty-First Division, Camp Wheeler, Macon, Ga.

The school of sanitation and medicomilitary tactics is progressing. Sessions are held four afternoons in each week; on Wednesday the officers of the mounted organizations take a ride into the country. These rides are a combination of pleasure, practice in riding, and instruction in topography and field work. Complete problems will be taken up soon.

NOTES

Major Harrold has secured medical officers to fill his compliment with the 121st Infantry.

Colonel Fisher of the Surgeon-General's Office inspected the camp, October 8. He appeared surprised to find a new motor ambulance company here.

Captain Pratt, M. R. C., is here to give instruction in gas defense.

The tuberculosis board is progressing rapidly; likewise the board on disease of the heart and that on mental diseases.

The base hospital will open about October 15, with some 250 patients.

The men of the ambulance companies are putting in an underground first-aid station close to the firing trench of the trench system now under construction. It will be fitted up as if for actual use, and used for instruction in gas defense.

As the division is now being filled up with draft men the sanitary units and detachments will also be filled. All units have already been organized, but there is a shortage of medical officers.

Capt. William A. Padgett of the Alabama National Guard has been promoted to major.

BASE HOSPITAL NOTES

The officers' quarters were completed, October 4, and promptly occupied. After several weeks in tents, the individual rooms were properly appreciated.

The administration building, receiving ward, two single ward buildings, laboratory building and operating pavilion are all practically complete, with the exception of electrical connections. The first is now being occupied by the administrative staff; intensive training and instruction is being given the enlisted personnel in order that they may be quite ready for their duties when we begin to receive patients, Wednesday next.

Lieutenant Horne, M. R. C., is now convalescent, following an operation for appendicitis.

Capt. Samuel C. Baker, M. R. C., specialist in brain surgery, reported for duty, October 10, and Capt. Francis R. Lyman, M. R. C., specialist in plastic surgery of the head, on October 11, thus probably completing the personnel of the staff.

ONE HUNDREDTH AND SIXTH SANITARY TRAIN

The camp hospital has still averaged 270 patients and great interest is taken by the local Red Cross in providing comforts. The meeting of the Red Cross, October 12, will surely be productive of added comforts.

Dr. Snavely of Atlantic, national director of the Red Cross, visited the camp hospital, October 12, and was greatly pleased with conditions.

The weekly social and dance took place Wednesday, and a most enjoyable time was had by all. Many visiting officers and ladies of Macon attended. Coffee and sandwiches à la buffet were served. Music was furnished by the Florida Field Hospital Orchestra.

The sanitary train is now being conducted as a regiment with its battalions of field hospital and ambulance companies. A supply organization is making its need felt.

The sick rate is dropping steadily.

Major George C. O'Connell, Alabama, has reported from leave of absence and is now on full duty.

Lieut. Edward S. Byrd of the (Georgia) Field Hospital No. 122, about to enter the ranks of the benedicts, is receiving the congratulations of brother officers. The lady is Miss Lucy B. Boyd of Enterprise, Ala.

Eightieth Division, Camp Lee, Petersburg, Va.

CONSTRUCTION OF BASE HOSPITAL

The past two weeks have witnessed rapid progress in the construction of the base hospital which although not completed, has received a large number of patients. The number, however, has been comparatively small, and has consisted largely of minor cases which could not be cared for in the regimental infirmaries. The staff has been working under difficulties owing to delay of manufacturers in sending equipment and a large part of the time of the staff has been occupied in making special examinations in doubtful cases shortly after the arrival of the drafted men.

The majority of the enlisted men are new and inexperienced in nursing, and the arrival of sixteen trained female nurses during the past week will insure better care for the patients. One woman arrived in camp alone, the first woman to stay here over night. What Major Hope christened her can readily be imagined. Congratulations are in order for Capts. J. Bayard Clark, M. R. C.; Ewing B. Day, M. R. C., and Samuel B. Moore, M. R. C., who now wear their well deserved gold oak leaves. There have been a few changes in the staff, as the following men have been transferred from duties in the division to assignments in the base hospital: Lieuts. A. C. Butcher, M. C. Campbell, A. J. Colborn, W. J. Davies and William F. Davison, all of the M. R. C.

The staff are comfortably quartered in the receiving ward and now have their own mess, and since Captain Merritt has had charge of it he is more popular than ever. Major Clark has been assigned to the work of supervising the care and prevention of venereal diseases in the division, and has devised a most satisfactory wash stand similar in shape to a urinal for the purpose of administering venereal prophylaxis. These stands are now being made and will shortly be installed. A prophylaxis station has been opened in Petersburg, and treatments are now given within a very short time after the men have exposed themselves to infection.

Col. Thomas Herbert Goodwin, C. M. G., D. S. O., of the British Army, assigned to the Surgeon-General's office of the United States Army.

PSYCHOLOGIC EXAMINATIONS

One of the most interesting and novel experiences which the medical officers have had at Camp Lee was the psychologic examination which was given by the ten psychologic examiners stationed here to examine the troops, under the direction of Lieut. Clarence S. Yoakum of the Sanitary Corps. Lieutenant Yoakum is professor of psychology in the University of Texas, and he and his assistants are well known in the field of practical applied psychology. The medical officers were examined at the request of Lieut.-Col. T. L. Rhoads, the division surgeon, with the hope that the examination would indicate in a general way the comparative adaptability of the different men.

The examinations were not difficult, but called for the alertness and accuracy so essential for a good soldier. No man can make a successful soldier or officer unless he grasps the actual meaning of his orders and knows how to obey them with precision and dispatch. The tests that were given rank the men on such qualities as these and, at the same time, rank them quite accurately on general intelligence. Tests have already been given to men of the regular Army and the results compare, in a high degree, with the estimates of the men made by the officers themselves. The gradings given compare quite accurately with the provisional estimate of the men made by Lieut.-Col. Rhoads and Major Schmitter. The results of the examinations of medical officers are very interesting. The base hospital physicians rank first, the regimental surgeons second and the Dental and Veterinary Corps, third and fourth. It is perhaps only fair to say that there were relatively few of the last two groups, so that their rankings are necessarily less accurate than the others. It required a staff of almost 100 men to give the tests and score and record the results. The tests created much comment and were enjoyed by the men as much as an interesting game would be.

EARLY DUTIES

The medical officers of the regiments have had their time very largely occupied in examining recruits, administering "triple typhoid" vaccine and learning their routine duties, and it has not as yet been possible to organize the sanitary personnel of the regiments and begin their formal instruction. This will begin shortly.

SANITARY TRAIN

The sanitary train under the direction of Capt. Elliott B. Edie, M. R. C., has been able to start systematic instructions. Lieut. Burr Ferguson, now Captain Ferguson, has been appointed instructor of ambulance companies by Colonel Hamilton, the commander of the trains, and work has been commenced. Drill, instructions and first aid will occupy most of the time during the first few weeks. The ambulance companies have been rechristened. Ambulance Company A, organized at Fort Oglethorpe, Ga., becoming No. 318; No. 43, organized by the Red Cross of Raleigh, N. C., is now No. 317, and Ambulance Company No. 46, organized by the Red Cross of Richmond, Va., is now No. 319. Odd numbered companies are motor drawn and even numbered companies animal drawn.

PAPER WORK

After the first quota of troops are examined this week the real work for the winter will begin, for which the regimental officers are all eager. Paper work is losing its terror and is gradually becoming comprehensive and easy.

HEADQUARTERS GOSSIP

The sanitary office, the headquarters of the division surgeon, is one of the busiest offices in the division, and Colonel Rhoads has already earned a reputation for industry and fairness. One of the assistants in the office, Capt. Hugh T. Nelson, Charlottesville, Va., quietly asked for a pass over Sunday and arrived back Monday morning but preceded by the announcement of his marriage to Miss Edith Rankin of Richmond, Va., on October 6. Captain Nelson is the only war bride among the medical officers since Camp Lee has opened.

Col. Percy M. Ashburn and Surg.-Gen. William C. Gorgas at the Medical Officers' Training Camp, Fort Benjamin Harrison, Indiana.

THE DIVISION OF INTERNAL MEDICINE OF THE SURGEON-GENERAL'S OFFICE

The following is a list of physicians—internists—who have been appointed chiefs of the medical service in the great hospitals connected with the cantonments of the National Army and the National Guard. It is a guaranty of the high character of the professional work that will be done in them, and of the care that the sick soldiers will receive during their training. It is also an index of the patriotism of the best men in the medical profession:

CHIEFS OF MEDICAL SERVICE, CAMP HOSPITALS

NATIONAL ARMY

Camp Devens, Ayer, Mass., Maj. Joseph H. Pratt, Boston, Mass., instructor in medicine, Harvard University Medical School; assistant visiting physician, Massachusetts General Hospital.

Camp Upton, Yaphank, Long Island, New York, Maj. Harlow Brooks, New York City; professor of clinical medicine, New York University Medical College; visiting physician, City Hospital.

Camp Dix, Wrightstown, N. J., Maj. David Bovaird, New York City; assistant professor of clinical medicine, College of Physicians and Surgeons, Columbia University; visiting physician, Presbyterian Hospital.

Camp Meade, Admiral, Md., Maj. Nellis B. Foster, Ann Arbor, Mich., professor of internal medicine, University of Michigan Medical School.

Camp Lee, Petersburg, Va., Maj. Lawrence Litchfield, Pittsurgh, Pa., practicing physician and consultant.

Camp Jackson, Columbia, S. C., Maj. W. W. Herrick, New York City, associate in medicine, College of Physicians and Surgeons, Columbia University, chief of clinic in medicine, Vanderbilt Clinic; assistant attending physician, Roosevelt Hospital.

Camp Gordon, Atlanta, Ga., Maj. Eugene E. Murphey, Augusta, Ga., professor of medicine, Medical Department, University of Georgia.

Camp Sherman, Chillicothe, Ohio, Maj. Dudley D. Roberts, Brooklyn, N. Y., clinical professor of gastro-enterology, Long Island College Hospital; visiting physician, Brooklyn Hospital.

Camp Taylor, Louisville, Ky., Maj. Walter W. Hamburger, Chicago, Ill., assistant professor of medicine, Rush Medical College, University of Chicago; visiting physician, Michael Reese and Cook County hospitals.

Camp Custer, Battle Creek, Mich., Maj. Ernest E. Irons, Chicago, Ill., assistant professor of medicine, Rush Medical College, University of Chicago; visiting physician, St. Luke's and Cook County hospitals.

Camp Grant, Rockford, Ill., Maj. Joseph A. Capps, Chicago, Ill., associate professor of medicine, Rush Medical College, University of Chicago; visiting physician, St. Luke's and Cook County hospitals.

Camp Pike, Little Rock, Ark., Maj. Arthur A. Small, Chicago, Ill., instructor in medicine, Rush Medical College, University of Chicago; visiting physician, St. Joseph's Hospital.

Camp Dodge, Des Moines, Iowa, Maj. Joseph L. Miller, Chicago, Ill., associate professor of medicine, Rush Medical College, University of Chicago; visiting physician, Presbyterian and Cook County Hospitals.

Camp Funston, Fort Riley, Kansas, Maj. Andrew MacFarlane, Albany, N. Y., clinical professor of medicine, Albany Medical College, Union University; visiting physician, St. Peter's Hospital.

Camp Travis, Fort Sam Houston, Texas, Maj. Herbert C. Moffitt, San Francisco, professor of medicine, University of California; physician to University Hospital.

Camp Lewis, American Lake, Washington, Maj. Calvin S. White, Portland, Oregon, assistant professor of medicine, University of Oregon, Medical School; health officer, Portland.

NATIONAL GUARD

Camp Greene, Charlotte, N. C., Maj. Francis W. Palfrey, Boston, instructor in medicine, Harvard Medical School; assistant visiting physician, Boston City Hospital.

Camp Wadsworth, Spartanburg, S. C., Maj. Llewellyn Sale, St. Louis, Mo., instructor in medicine, Washington University Medical School, St. Louis; visiting physician, St. Louis City Hospital.

Camp Hancock, Augusta, Ga., Maj. Frederick J. Barrett, New York, adjunct professor of medicine, Post-Graduate School of Medicine, New York; visiting physician, Post-Graduate Hospital, New York.

Camp McClellan, Anniston, Ala., Maj. William H. Robey, Jr., Boston, Member of Faculty of Harvard Medical School; visiting physician, Boston City Hospital.

Camp Sevier, Greenville, S. C., Maj. Edward H. Goodman, Philadelphia, associate in medicine, University of Pennsylvania; visiting physician, Presbyterian Hospital, Philadelphia.

Camp Wheeler, Macon, Ga., Maj. Richard Weil, New York, professor of experimental medicine, Cornell University Medical School; adjunct visiting physician, Mount Sinai Hospital, New York.

Camp McArthur, Waco, Texas, Maj. Oliver H. Campbell, St. Louis, visiting physician, St. Louis City Hospital, St. Louis; assistant in medicine, Washington University Medical School.

Camp Logan, Houston, Texas, Maj. Josiah N. Hall, Denver, professor of medicine, University of Colorado.

Camp Cody, Deming, N. Mex., Maj., William S. Bigelow, Boston, physician and consultant.

Camp Doniphan, Fort Sill, Okla., Maj. Sidney Strauss, Chicago, assistant professor of medicine, Rush Medical College, Chicago; assistant attending physician, Michael Reese and *Presbyterian* hospitals, Chicago.

Camp Bowie, Fort Worth, Texas, Maj. James C. Greenway, New Haven, Conn., director of department of medical supervision, Yale University, New Haven, *Conn.*

Camp Sheridan, Montgomery, Ala., Maj. James S. McLester, Birmingham, *Ala., professor of medicine*, Graduate School *of* Medicine, University of Alabama; physician in chief, Hillman Hospital.

Camp Shelby, Hattiesburg, Miss., Maj. George H. Lathrope, Morristown, N. J., attending *physician*, Morristown Memorial Hospital.

Camp Beauregard, Alexandria, La., Maj. Birnie J. Guthrie, New Orleans, La., *professor* of clinical *medicine*, Tulane University.

Camp Kearney, Linda Vista, Calif., Maj. Philip S. Chancellor, Santa Barbara, Calif., *practicing* physician and consultant.

BASE HOSPITALS

Fort McPherson, Maj. C. N. B. Camac, New York, assistant professor of clinical medicine, College *of Physicians* and Surgeons, Columbia University, New York; *director of* medical service, Gouverneur Hospital, New York.

Fort Des Moines, *Maj. Herbert H. Frothingham*, Chicago, practitioner of medicine and consultant.

Fort McHenry, Capt. J. *Albert* Chatard, Baltimore, Md., instructor in clinical medicine, Johns Hopkins Medical *School, Baltimore*, Md.

DIAGNOSIS OF CARDIOVASCULAR DISEASES

In *addition to these*, assistants have been assigned to the various *hospitals, with special* training in modern methods *of* diagnosis and *treatment of* cardiovascular diseases, and after a period of *special instruction* with *Dr. Alfred E.* Cohn in *the* Rockefeller Institute, as follows:

Capts. Harold W. Stevens, Pittsburgh; *Albert* Vander Veer, Jr., *New York City*; James *Howard Agnew, Mobile*, Ala.; and Henry Rose Carter, Jr., Baltimore; Lieuts. Julien E. Benjamin, Cincinnati; Hugh K. Berkley, San *Francisco*; *Ernest P. Boas, New York City*; James H. Brown, Colorado Springs, Colo.; Carl R. Comstock, Saratoga *Springs*, N. Y.; W. L. *Freyhoff*, Cincinnati; Charles D. Giddings, New *York* City; Alpheus F. Jennings, Detroit; Berton Lattin, New York City; Frank B. *Lusk, Chicago*; Willard D. Mayer, *Detroit*; William J. Kerr, San Francisco; *Louis H.* Nahum, New York City; Harold E. B. Pardee, New York City; Edward J. *Riley*, New York City; Orville F. *Rogers*, *Jr.*, Dorchester, *Mass.; Truman G. Schnabel*, Philadelphia; S. Calvin Smith, Philadelphia; F. *Janney* Smith, Detroit; Thayer A. Smith, New *York City; Arthur* E. Strauss, St. Louis; Francis C. Tyng, Salt Lake City.

SPECIAL EXAMINERS AND CONTRACT SURGEONS

Since July, special examiners, selected because of their experience and diagnostic skill, have been *conducting the* examination of the troops in the reserve *officers' training* camps, reorganization camps of the regular Army and of the *National* Guard when assembled for mustering into the federal service *in* the larger cities, and are now at work in the thirty-two cantonments of the National Army and the National Guard. *Many of* them are teachers of medicine and physicians to important hospitals, who could not accept commissions because of this obligation, and have *patriotically* volunteered as contract surgeons. Others, *beyond the age limit for commission* in the corps, have embraced this *opportunity* of rendering a service to the country with only *the* rank and *pay* of a first lieutenant, to which contract surgeons are entitled. Their names make it certain that so far as it is humanly possible no man will be forced to undertake military service whose health will be thereby endangered; and *no* man will escape service who is not suffering from actual disease of the heart or vessels. A list of these cardiovascular examiners follows:

Majors *David Boviard, New York City; Thomas D. Coleman, Augusta, Ga.; *Lewis A. *Conner, New York City; James* C. Greenway, New Haven, Conn.; *Josiah* N. *Hall*, Denver; W. W. Hamburger, Chicago; Walter A. Jayne, Denver; Herbert C. Moffitt, San Francisco; and Roger S. *Morris, Cincinati.*

Capts. James H. Agnew, Mobile, Ala.; Ralph C. Brown, Chicago; *S. L. Cash, New York City; *Joseph A. Chatard, Baltimore; Jule B. Frankenheimer, San Francisco; *Milton H. Fussell, Philadelphia; Cary Gamble, Baltimore; *William J. Hammer, New York City; Alpheus F. *Jennings*, Detroit; Oscar E. Lademann, Milwaukee; *John J. McClellan, Chicago; B. S. Oppenheimer, New York City; Ross V. Patterson, Philadelphia; Henry L. Smith, Baltimore; *Gerald B. Webb, Colorado Springs, Colo.; *Gordon Wilson, Baltimore, and Charles C. Wolforth, Philadelphia.

Lieuts. *James R. *Arneill*, Denver; Hugh K. Berkley, San Francisco; **Thomas* F. Ellis, New York City; *Hermann Elwyn, New York City; *Augustus Eshner, New York City; *Harvey M. Ewing, Montclair, N. J.; William J. Kerr, San Francisco; *John T. Kling, Jr., Baltimore; **Geza Kremer*, New York City; *Frank McLean, New York City; John H. *Musser, Philadelphia*; *David Reisman, Philadelphia; *Henry C. Thacher, New York City; Thayer A. Smith, New York City, and Frank N. Wilson, St. Louis.

Contract Surgeons Vanderpoel Adriance, *Williamstown*, Mass.; Arthur P. Beifeld, Chicago; Worth N. *Brown*, Baltimore; *F. R. Burke, Boston; *E. A. Burnham, Boston; Glentworth R. Butler, Brooklyn; Robert J. Carlisle, *New York City*; Thomas A. Claytor, Washington, D. C., *A. T. Downing, Boston; Frederick T. Fahlen, St. Louis; Harold Feil, Cleveland; **Cleveland Floyd*, Boston; *W. B. Ford, Milwaukee; *Hugo* A. Freund, Detroit; Alfred Friedlander, Cincinnati; Joseph C. Friedman, Chicago; Lewis Fox Frissell, New York City; James H. Gibbes, Columbia, S. C.; Charles L. Greene, St. Paul; *Harry W. Goodall, Boston; T. Stuart *Hart, New York City*; George S. Hill, Boston; Tasker Howard, *Brooklyn*; William E. Hughes, Philadelphia; *Henry* Jackson, Boston; Thomas S. Lee, Washington, D. C.; *Donald* Macomber, Boston; *J. D. Madison, Milwaukee; *H. D. McCarty, *Baltimore*; Louis Mendelsohn, Boston; *G. R. Minot, Boston; *T. J. Murphy, Boston; *Lawrence T. Newhall, Boston; *Edward O. Otis, *Boston*; **Arthur J.* Patek, Milwaukee; *Peter J.* Pothuisje, Denver; Thomas I. Simonton, Pittsburgh; Willard J. Stone, Toledo; *W. P. Stubbs, Baltimore; *Lawrence G. *Sykes, Milwaukee*; Arnold S. Taussig, Denver, and J. Gurney Taylor, Milwaukee.

MEN UNDER HALF-TIME CONTRACT

Doctors George Bachmann, Atlanta, *Ga.*; *George S.* Bond, Indianapolis, *Cary Eggleston, New York City; *Howard H. *Mason*, New York City; Martin A. Mortensen, Battle *Creek*, Mich., and *Leander H. Shearer, New York City.

* Tuberculosis examiners also.

COMPLETION OF INTERNSHIP OF COMMISSIONED OFFICERS

The Surgeon-General's Office has issued the following statement relative to interns in the Medical Reserve *Corps*:

When a *regularly* commissioned officer *in* the Medical Reserve Corps *applies for* permission to complete one *year's* hospital service, such *permission* will be granted *by the* Surgeon-General *providing the* exigencies of the service permit. *In* order to continue *on the inactive list* for the completion *of* internship, the officer *concerned will make* formal *application* to the Surgeon-General *of* the *Army*, which shall be accompanied by a statement *from the executive* officer of the hospital *certifying the fact that the appointment* as intern has been made, and the date on which the *internship* commenced. *In* granting permission to continue inactive as above, the following provisions will apply: (*a*) period of internship, in so far as this office is concerned, commences August 1 following graduation of *any year* and terminates July 31 *following*; (*b*) in event *of* termination of service prior to expiration of *one year* allowed, immediate report must be made to the *Surgeon-General* by both the executive officer of the hospital and the *intern*; (*c*) *the* term *internship* is hereby interpreted to mean *one year's* hospital service immediately following graduation and *cannot* be *applied* to hospital service entered into after August 1 *next* succeeding graduation.

Interns who *have* already received appointments in the Medical *Reserve* Corps but who have not accepted them may be *allowed* an opportunity to complete their service *as* interns either by entering the Medical Enlisted Reserve Corps, conformably to the regulations made and provided for the discharge of interns from military service under the selective *service law*, or *by* accepting appointment. *In* the latter case, *application must* be made at once as above provided. Those who *have not already* received commissions in the Medical Reserve Corps and who desire to complete hospital service but who come within the provisions of the selective service *law*, will be obliged to enlist in the Medical Enlisted Reserve Corps.

At the time of application for permission to continue inactive, commissioned officers to whom *this privilege* is granted and who are within the draft age will be supplied with a statement to the effect that they are regularly commissioned and subject to orders from this department, and Form 117, prepared by *the Provost* Marshal-General, and obtainable at the office of the local board, will be signed at this office *if* a copy *is forwarded* with the statement that it is required by the local board. Affidavit forms for such officers have been prepared and are being sent to interns commissioned as officers who desire to complete their internships.

Constitution of Board to Write Medical History of the War

A board constituted to write the medical history of the war consists of Lieut.-Col. *C. C. McCulloch, M. C.*, U. S. Army; Major Fielding Garrison, M. R. C., U. S. Army, *and* Major John S. Fulton, M. R. C., U. S. Army. *This committee* may be addressed at the Army *Medical Museum*, Washington, D. C.

Orders to Officers of the Medical Corps

Col. William O. Owen, M. C., now on duty at the Army Medical Museum, to proceed to Detroit, Mich., for the purpose of inspecting the motion picture laboratory of the Ford Motor Works, and on completion of this duty to return to his proper station.

Lieut. Henry L. Krafft, M. C., to be relieved from duty at the Walter Reed General Hospital, Takoma Park, D. C., and to proceed to Camp Dix, Wrightstown, N. J., and report in person to the commanding general of that camp for duty with the division surgeon.

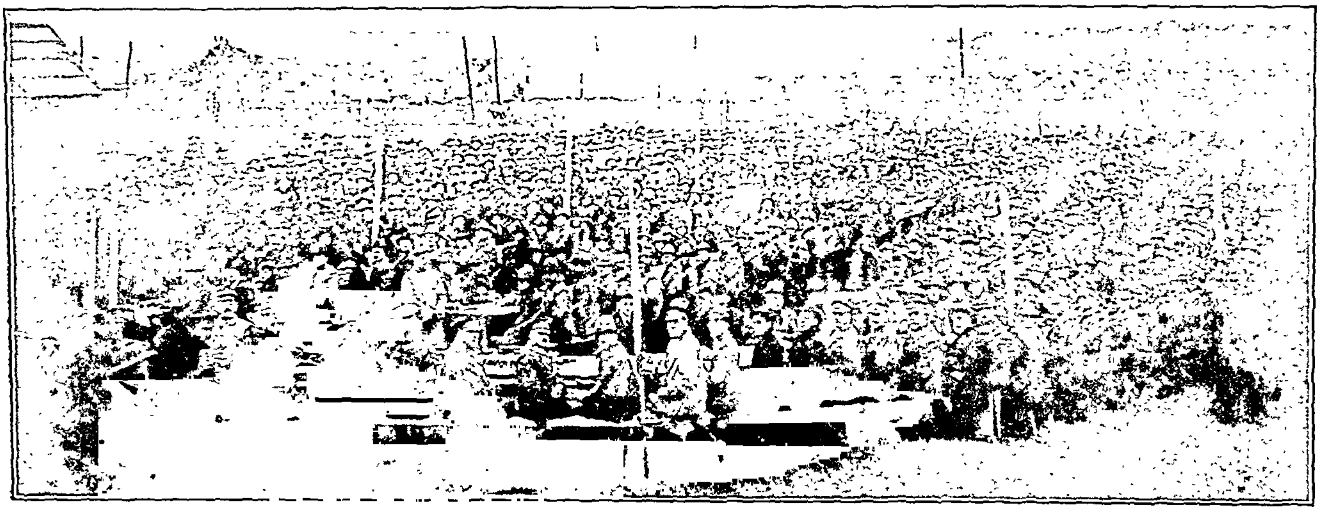
Major Benjamin B. Warriner, M. C., to be relieved from duty at Douglas, Ariz., and to proceed to Mineola, Long Island, N. Y., and report in person to the commanding officer, Hazlehurst Field, Aviation Section, Signal Corps, for duty.

Major Ross H. Skillern, M. C., Pennsylvania N. G., be relieved from his present duty at Camp Sheridan, Montgomery, Ala., and directed to report in person to the commanding general thereof and to the commanding officer of the base hospital for duty in the division of otolaryngology, section of surgery of the head.

Major Thomas D. Woodson, M. C., now in this office, be directed to proceed to the following named places for the purpose of inspecting these sites to determine their degree of availability for use as general hospitals, and on completion of this duty to return to his proper station: Fort Niagara, N. Y; Fort Porter, N. Y.; Fort Ontario, N. Y.; Fort Ethan Allen, Vt.; Madison Barracks, N. Y.; Plattsburg Barracks, N. Y.

First Lieut. Walcott Denison, M. C., on the expiration of sick leave granted him in office orders No. 5403, Surgeon-General's Office, Oct. 9, 1917, be relieved from duty in the office of the Surgeon-General and directed to report in person to the chief surgeon, aviation section, signal corps, for duty in his office, and by letter to the commanding general, aviation section, signal corps, Washington, D. C.

Major Henry B. McIntyre, M. C., New York, N. Y., be directed to proceed to Fort Oglethorpe, Georgia, and report in person to the commandant, Medical Officers' Training Camp, Camp Greenleaf, for duty as instructor.



The barbecue at the meeting of the Association of Military Surgeons at Fort Benjamin Harrison, Indiana. In the background may be seen the evacuation hospital established by Major H. M. Lyle.

Major Kerwin W. Kinard, M. C., be relieved from duty at the base hospital, Camp Sherman, Chillicothe, Ohio, and directed to proceed to Fort Riley, Kan., and report in person to the commandant, Medical Officers' Training Camp, for duty as instructor.

Lieut.-Col. Robert L. Carswell, M. C., be relieved from duty at the Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Georgia, and directed to proceed to Fort Sam Houston, Texas, and report in person to the commanding general, southern department, for duty.

Orders to Officers of the Medical Reserve Corps

ALABAMA

To Camp Jackson, Columbia, S. C., for the purpose of making examinations in his specialty, from Phipps Clinic, Baltimore, Md., Lieut. Wilbur L. Heard, Mt. Vernon.

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. Thomas M. McMillan, Jr., Mobile.

To Fort Oglethorpe for instruction, Lieuts. Jacob D. Staples, Camp Hugh; Edward D. McAdory, Cullman; Joseph M. Weldon, Tallassee; Walter E. Allen, Ward; from Motor Ambulance Supply Depot, Louisville, Ky., Charles W. Williams, Cherokee.

To Newport News, Va., for duty with 303d Stevedore Regiment, from Fort Oglethorpe, Capt. Mack Rogers, Birmingham.

To his home and return to the inactive list of the Medical Reserve Corps of the Army on account of being physically disqualified for active service, Lieut. Horace L. McWhorter, Collinsville.

Honorably discharged, Lieuts. Joseph M. Theringer, Mobile; from the Medical Reserve Corps on account of holding a commission in the National Guard, Frank V. Meriwether, Samson, Ala.

ARKANSAS

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieut. Samuel G. Boyce, Little Rock.

To Camp Pike, Little Rock, Ark., from Camp Beauregard, Alexandria, La., for duty with the First Arkansas National Guard, Lieut. James E. Phillips, Eureka Springs.

To Fort Oglethorpe for instruction, Lieuts. John E. Burns, Black Rock; Mathew A. Bizzell, Doddridge; James E. Johnson, Fort Smith; Raphael W. Steele, Gentry; Mahlon D. Ogden, Geyer C. Wood, Little Rock; Everett N. Lipe, Scranton; John M. Bearden, Sonora.

To Washington University, St. Louis, Mo., for three weeks' intensive training, Lieut. Sydney J. Wolfermann, Ft. Smith.

CALIFORNIA

To Camp Cody, Deming, N. M., for duty, Lieut. Clarence W. Dodge, Los Angeles.

To Camp Lewis, American Lake, Wash., for duty, Lieuts. Robert W. Brace, Modesto; John E. Paulson, San Quentin.

To Camp Mills, Garden City, L. I., for duty with First Colorado Field Hospital, from Camp Baldwin, Denver, Colo., Lieut. Paul A. Opp, Los Angeles.

To Fort Oglethorpe for instruction, Lieut. John H. Woolsey, San Francisco.

To Los Angeles, for a course of instruction in military roentgenology, Lieut. John P. Byrnes, Oakland.

To their homes and return to the inactive list of the Medical Reserve Corps, Major James R. Moore, Los Angeles; Lieut. Charles H. Bailey, San Francisco.

CANAL ZONE

To Mineola, L. I., for duty with the Aviation Section, from duty at Balboa, Canal Zone, Capt. Edward P. Beverly, Cristobal.

COLORADO

To Dodge, Iowa, for duty in his specialty, from duty at Fort Douglas, Utah, Lieut. Philip Work, Pueblo.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieuts. Floyd C. Turner, Stoneham; Aubert Durnell, Strong.

To Camp Robinson, Sparta, Wis., for duty with the 8th Field Artillery, Lieut. Robert L. Zaegel, Denver.

To Fort Logan, Colo., for duty, Major William W. Grant, Denver.

To Fort Oglethorpe for instruction, Lieuts. William S. Brown, Denver; James M. Shields, Grand Junction; Ernest G. Edwards, La Junta.

To his home and return to the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from duty at Fort Oglethorpe, Lieut. Harry B. Sobernheimer, Meeker.

CONNECTICUT

To Fort McHenry, Md., for duty in the laboratory, Lieut. Abraham L. O'Shansky, New Haven.

To Fort Oglethorpe, for instruction, Lieut. Owen O'Neill, Willimantic.

To Neurological Institute, New York, N. Y., for intensive study in his specialty, Lieut. Harold A. Bancroft, Hartford.

Honorably discharged on account of being physically disqualified, Lieut. Albert A. Wheelock, New Canaan.

DELAWARE

To Fort Oglethorpe for instruction, Lieut. John B. Rutherford, Wilmington.

DISTRICT OF COLUMBIA

To Camp Hancock, Augusta, Ga., from Fort Oglethorpe, for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. Oliver C. Cox, Washington.

To Camp Logan, Houston, Tex., for duty as a member of a board of medical officers for tuberculosis examination, Lieut. Richard M. Little, Washington

To Camp Wheeler, Macon, Ga., 31st Division, *for duty as member of* a board of medical officers for tuberculosis examination, from Fort Myer, Va., Lieut. Frederick Sohon, Washington.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Lieut. Stuart C. Johnson, Washington.

To Fort Oglethorpe for instruction, Lieuts. True S. Burgess, Albert E. Pagan, David G. Sampson, James S. Taylor, Washington.

To Langley Field, Hampton, Va., for temporary duty in connection with aviation and upon completion of this duty to return to their proper station, Majors Edward G. Seibert and William H. Wilmer, Washington.

To Mineola, L. I., from Washington, D. C., for temporary duty in connection with the Aviation Service of the Army, Majors William H. Wilmer and Edward G. Seibert, Washington.

To Rockefeller Institute, New York, for a course of instruction and upon completion of this course to return to his home and to the inactive list of the Medical Reserve Corps, Major James F. Mitchell, Washington.

FLORIDA

To Camp Meade, Annapolis Junction, Md., *for duty with 23rd* Engineer Regiment, from Fort Oglethorpe, Lieut. Adam C. Walkup, McIntosh.

To Fort Oglethorpe for instruction, Capt. Thomas A. Neal, Sanford; Lieut. Henry P. Bevis, Arcadia.

To Mineola, L. I., Signal Corps Aviation School, Hazelhurst Field, from Aero Squadron at Fort Wood, N. Y., for duty, Lieuts. James L. Pennington, Fountain; Claude V. Gautier, Passagrilla.

To Yaphank, L. I., from Fort Oglethorpe for duty as assistant to the division surgeon, Lieut. James B. Griffin, St. Augustine.

Honorably discharged, from the Medical Reserve Corps of the Army, from duty at Fort Oglethorpe, Capt. Joseph N. Fogarty, Key West.

GEORGIA

To Camp Meade, Annapolis Junction, Md., for duty with 23rd Engineer Regiment, *from* Camp Greenleaf, Fort Oglethorpe, Lieut. Henry *D. Coffee, Auburn.*

To Camp Wheeler, Macon, Ga., for duty, from duty at Atlanta, Ga., Lieuts. Thomas F. Jackson, Atlanta; for temporary duty, William F. Cross, Cassville.

To Fort Oglethorpe for instruction, Lieuts. Northen C. Tribble, Atlanta; Donald T. Rankin, Blackshear; Robert H. McDonald, Bullochville; Gordon S. Sumner, Poulan; Jesse H. Hendry, Shellman; Walter E. Mobley, Social Circle; Carl B. Walch, Tifton; Claude G. Scruggs, Valdosta.

To Newport News, Va., for duty with 304th Stevedore Regiment, from Fort Oglethorpe, Lieut. Clifford M. Mitchell, Dalton.

Par. 10, special orders No. 201, War Dept., Aug. 29, 1917, as relates to Lieut. John H. Hall, Atlanta, be modified so as to assign him to active duty at Emory University, Atlanta, Ga., with examining unit at that place.

To return to the inactive list of the Medical Reserve Corps, *from* duty at Fort Oglethorpe, Lieut. Grady L. Carter, Talbotton.

Around the bonfire at the meeting of Military Surgeons, Medical Officers' Training Camp, Fort Benjamin Harrison, Indiana.

ILLINOIS

To Camp Dodge, Des Moines, Ia., from Fort Riley, Capt. Robert R. B. Jacks, Highwood; Lieuts. Harry I. Stevens, Ashley; Louis L. Brodsky, Lewis H. L. Lippmann, Edward T. Robinson, Chicago; Knud Hartnack, Downers Grove; Franklin B. Pearce, Eldorado; Edward E. Edmondson, Mt. Vernon; for temporary duty, John Higginson, Chicago.

To Camp Funston, Fort Riley, Kan., for duty, from *Medical* Officers' Training Camp, Lieuts. Hart H. Fisher, Urban B. Harris, Vernon M. Jared, Ellis V. C. Moulton, Chicago; Joseph C. Kaczkowski, Dunning; Robert G. Bond, Harrisburg; Randolph F. Snider, St. Francisville; Roy H. Wilson, Tampico.

To Camp Gordon, Atlanta, Ga., for duty in the surgical service after completion of course at Rockefeller Institute, New York, Capt. Herbert L. Thompson, Harrisburg.

To Camp Grant, Rockford, for duty, Lieut. Imas P. Rice, Oak Park.

To Camp Logan, Houston, Tex., for duty in division of otolaryngology, section of surgery of the head, from the base hospital at Camp Logan, Lieut. Jerome F. Strauss, Chicago.

To Camp Pike, Little Rock, Ark., for duty in charge of the division of brain surgery, section of surgery of the head, Capt. William Fuller, Chicago.

To Camp Sevier, Greenville, S. C., from Fort Benjamin Harrison, Ind., for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. Lyman A. Burnside, West Union.

To Camp Taylor, Louisville, Ky., for temporary duty, Capt. Albert A. Ankenbrandt, Mt. Carmel.

To Columbus Barracks, Ohio, for duty, Lieut. Edmund B. Owens, Dixon.

To Cook County Hospital, Chicago, for a course of instruction in military roentgenology, Lieut. Edward W. Johannes, Chicago.

To Fort Benjamin Harrison, for instruction, Lieuts. William H. Crede, Chicago; Roy M. Montfort, Danville; for tuberculosis instruction, Samuel M. Marcus, Chicago.

To Fort Des Moines, Iowa, for duty in orthopedic service, Capt. Frederick C. Test, Chicago.

To Fort Leavenworth, Kan., for duty, Capt. Louis Thexton, Chicago.

To Fort Oglethorpe, for instruction, Lieuts. Oluf J. Pederson, Robert S. Salk, Alonzo W. Saunders, Samuel J. Taub, Earl DeW. Wise, Chicago; Harver W. Tupper, *Nokomis;* Ira E. Neer, Springfield, and Franklin A. Martin, Tower Hill.

To Fort Slocum, N. Y., for duty, Capt. Henry F. Lewis, Chicago.

To Physical Examining Unit, Aviation Section, Signal Officers Reserve Corps, New York, for duty *as medical* member of examining board, Lieut. Grover C. Otrich, Belleville.

To Tenafly, N. J., for duty from Army Medical School, Lieut. Edwin R. May, Chicago.

To report in person to the commanding officer of the base hospital for duty, from Camp Bowie, Fort Worth, Texas, Lieut. Charles W. Monroe, Arthur.

To their homes and the inactive list of the Medical Reserve Corps, Lieuts. Robert E. Flannery, George M. Landau, Chicago; Edmon E. Richardson, Mattoon; Adelbert M. Sustin, Mendon.

INDIANA

To Camp Cody, Deming, N. M., from Fort Benjamin Harrison, for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. Reavill M. Walden, Evansville.

To Camp McClellan, Anniston, Ala., from Fort Benjamin Harrison, for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. Elmer C. Singer, Fort Wayne.

To Fort McHenry, Md., for duty in the division of ophthalmology and Otolaryngology, section of surgery of the head, Lieut. George W. Boner, Washington.

To Fort Oglethorpe, for instruction, Capt. Henry O. Bruggeman, Fort Wayne; Lieuts. Raymond A. Butler, Beech Grove; Grover A. Smith, Bryant; Arthur J. Fletcher, Connersville; Ephraim M. Folsom, Evansville; Frank A. Brayton, Sewell B. Coulson, Edward A. Willis, *Indianapolis; Cyrus B. Gardner,* Kendallville; James L. Saunders, Newport; John J. Connelly, Rockville; Jules L. Bierach, Salem.

IOWA

To Camp Bowie, Fort Worth, Texas, from Fort Riley, for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. Prentice B. Cleaves, Cherokee.

To Camp Dodge, Des Moines, Iowa, from Fort Riley, for duty, Lieuts. Roy C. Alt, Cedar Rapids; Leo C. Kuhn, Chariton; John W. Elder, Alfred S. Price, Des Moines; Joseph L. Ruyabitz, Duncombe; Charles L. Jones, *Gilmore* City; Royal C. Danley, Hamburg; Lawrence J. Kaasa, Lake Mills; Sylvanus E. Gorbin, Millerton; Walter E. Anthony, Ottumwa; Christian H. Dewey, Perry; Gardner F. Parker, Pocahontas; William H. Clary, Prescott; Stephen B. Rybolt, Troy Mills; *for* temporary duty, Gerald V. Coughlan, Pacific Junction; for duty in connection with the *division of otolaryngology, section of surgery* of the head, James A. Downing, Des Moines.

To Camp Funston, Fort Riley, Kan., for duty, Lieut. Jesse L. Saar, Summitville.

To Camp Grant, Rockford, Ill., for duty, Lieuts. Louis L. Bowie, Buckeye; for temporary duty, Clarence Harman, Whiting.

To Camp Lewis, American Lake, Wash., for duty, Lieut. William F. Brinkman, Des Moines.

To Camp Logan, Houston, Texas, for duty, Lieut. Jesse T. Grayston, Hazleton.

To Fort Meyer, Va., for duty with the Twelfth Field Artillery, Lieut. Charles T. Maxwell, Sioux City.

To Fort Oglethorpe, for instruction, Lieuts. Arthur C. Strong, Burlington; Thomas F. Thomson, Charter Oak; Emery W. Lehman, Des Moines; Garnett S. Felt, *New Providence;* Samuel W. Hartwell, New Sharon; Charles B. Bentz, Sioux City.

To Iowa City, Iowa, for the purpose *of procuring* material at the University of Iowa for a course of lectures to be given at Medical Officers' Training Camp, Fort Riley, Kan., Capt. Clarence Van Epps, Iowa City.

To Washington, D. C., for duty in the Surgeon-General's Office, Des Moines.

Par. 87, Special Orders, No. 213, War Department, Sept. 13, 1917, as relates to Major James F. Clarke, Fairfield, be modified so as to direct him on completion of his course at Rockefeller Institute, New York, to report to Major F. H. Albee, New York, for a course of instruction in bone grafting, and on completion of this duty to proceed to his home and return to the inactive list of the Medical Reserve Corps of the Army.

KANSAS

To Camp Dodge, Des Moines, Iowa, from Fort Riley, for duty, Lieuts. Roy W. Layton, Kansas City; Joseph E. Miller, Salina; Foy J. M. Ernest, Topeka.

To Camp Funston, Fort Riley, Kan., for Medical Officers' Training Camp, Capt. James C. Butler, Stafford; Lieuts. Charles M. Hensley, Topeka, Wilhelm A. Gartner, Troy; William T. Doherty, George E. Egloff, William P. Greening, Wichita.

To Camp Mills, Garden City, L. I., for duty, Capt. Samuel T. Millard, Topeka.

To Cornell Medical College, New York, from Fort Riley, Kan., for a course of instruction in military roentgenology, Capt. Charles J. McGee, Leavenworth.

To Fort Oglethorpe, for a course of instruction, Major Frederick W. O'Donnell, Junction City; Lieuts. George L. Dailey, Almena; George W. Potts, New Lancaster; Charles M. McKinley, Strong.

To report in person to the commanding officer of the base hospital for duty, from Camp Bowie, Fort Worth, Texas, Lieut. Arthur Knisely, Liberal.

To Washington, D. C., and report in person to the Surgeon-General of the Army, for duty in his office, Capt. John S. Fulton, Kiowa.

Par. 9, Special Orders, No. 186, War Department, Aug. 11, 1917, as relates to Lieut. Ronald O. Logsdon, Wichita, be modified so as to direct him to Camp Greenleaf, Fort Oglethorpe.

To their homes and return to the inactive list of tht Medical Reserve Corps of the Army on account of being physically disqualified for active service, Lieuts. James B. Donnell, Kinsley; Alexander Haggart, Ottawa.

KENTUCKY

To Camp Dodge, Des Moines, Iowa, from Fort Riley, for duty, Lieut. Clarence DeWeese, Fordsville.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers Training Camp, Lieuts. Walter L. Coolidge, Louisville; Thomas R. Griffin, Somerset.

To Camp Lee, Petersburg, Va., for duty, Capt. David P. Crockett, Hardy.

To Camp Taylor, Springfield, Ky., for duty, Capt. Meredith W. Hyatt, Springfield.

To Camp Wheeler, Macon, Ga., for regimental duty, from Fort Oglethorpe, Capt. Charles M. Gower, Trenton; for duty with ambulance companies, from Fort Oglethorpe, Lieut. John R. Jones, Princeton.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Capt. Vernon Blythe, Paducah.

To Fort Monroe, Va., for duty in the division of otolaryngology, section of surgery of the head, Capt. James R. Peabody, Louisville.

To Fort Oglethorpe, for instruction, Lieuts. William H. Nash, Finchville; Oliver H. P. Parrigin, Lexington; George M. McLeish, Louisville.

To Fort Thomas, Ky., for duty, Lieut. Owen B. Dameree, Mount Sterling.

To Provisional Hospital, Fort Oglethorpe, for duty as roentgenologist, from Camp Greenleaf, Lieut. John C. Howard, Middlesboro.

To Washington University, St. Louis, for three weeks' intensive training, Capt. Robert M. Coleman, Lexington.

LOUISIANA

To Boston, from Army Medical School, Washington, D. C., for a course of instruction in orthopedic work and on completion of this course to return to their proper station, Lieuts. Lucian A. Fortier and Henry T. Simon, New Orleans.

To Camp Funston, Fort Riley, Kan., for duty from Medical Officers Training Camp, Lieuts. Walter F. Henderson, Belcher; Doctor D. Gill, Gilbert.

To Camp Greene, Charlotte, N. C., for duty, Lieut. Philips J. Carter, New Orleans.

To Camp Shelby, Hattiesburg, Miss., for duty in charge of the division of brain surgery, section of surgery of the head, Lieut. Karl W. Ney, New Orleans.

To Camp Vail, Little Silver, N. J., for duty, Lieut. Haston V. Jones, Zona.

To Camp Wheeler, Macon, Ga., for duty with ambulance companies, from Camp Greenleaf, Fort Oglethorpe, Lieut. Solon R. Humphries, New Orleans.

To Fort Oglethorpe, for the purpose of examining the personnel of that camp in his specialty, Major Roy McL. Van Wart, New Orleans, for instruction, Lieuts. William L. Atkins, Athens; William R. Strange, New Orleans.

MAINE

To Boston, for instruction in military roentgenology, Lieut. Herbert W. Hall, Hallowell.

To Fort Oglethorpe, for instruction, Lieut. Gilman H. Clough, Dexter.

MARYLAND

To Camp Dodge, Des Moines, Iowa, for temporary duty, Lieut. Thomas N. Toomey, Baltimore.

To Camp Sheridan, Montgomery, Ala., Thirty-Seventh Division, for duty as member of a board of medical officers for tuberculosis examination, from Fort Myer, Va., Lieuts. Algernon D. Atkinson, for duty in the division of plastic and oral surgery, section of surgery of the head, from Fort Benjamin Harrison, Herbert W. Rogers, Baltimore.

To Camp Wheeler, Macon, Ga., for duty with ambulance companies, from Fort Oglethorpe, Lieut. Charles L. Magruder, New Market.

To Fort McHenry, Md., for duty as acting medical chief of General Hospital No. 2, Capt. Joseph A. Chatard, Baltimore.

To Fort Oglethorpe, for instruction, Lieuts. Julio R. Rolenson, George P. Ross, Leo F. Steindler, Baltimore.

To inactive list of Medical Reserve Corps, Lieut. John T. King, Jr., Baltimore.

To report by wire to the commanding general Southern Department, for assignment to duty, Lieut. Francis O. Barrett, Baltimore.

To Washington, D. C., for duty in the food section, Lieut. Albert T. Shohl, Baltimore.

To Washington University, St. Louis, for three weeks' intensive training, Lieut. Fred Rankin, Baltimore.

MASSACHUSETTS

To Boston, for a course of instruction in military roentgenology, Lieuts. Roy S. Perkins, Lowell; Charles L. M. Judkins, Lynn.

To Boston Psychopathic Hospital, Boston, for intensive study in his specialty, Lieut. Cyrus B. Partington, Fall River.

To Boston State Hospital, for a course of intensive study in his specialty, Lieut. Carl B. Hudson, Boston.

To Camp Bowie, Fort Worth, Texas, for duty, Lieut. John F. Ford, Boston.

To Camp Devens, Ayer, Mass., Camp Upton, Yaphank, L. I.; Camp Mills, Garden City, L. I., and Camp Dix, Wrightstown, N. J., for the purpose of making a special inspection of the section of surgery of the head for the Medical Department, and on completion to return to his proper station, Major Harris P. Mosher, Boston.

To Camp Devens, Ayer, Mass., for duty, Lieut. William A. Moncrieff, New Bedford.

To Camp Gordon, Atlanta, Ga., for duty in division of ophthalmology section of surgery of the head, Lieut. Dennis F. O'Conner, Worcester.

To Camp Meade, Annapolis Junction, Md., for temporary duty, Lieut. Harry C. Burrell, Medford.

To Camp Upton, Yaphank, L. I., for duty with division of otolaryngology, section of surgery of the head, Lieut. Charles T. Porter, Boston.

To Camp Wheeler, Macon, Ga., Thirty-First Division, for duty as a member of a board of medical officers for tuberculosis examination, from Fort Benjamin Harrison, Lieut. Charles E. Perry, Haydenville.

To Fort Leavenworth, Kan., for duty, Major John J. Thomas, Boston.

To Fort Oglethorpe, for instruction, Capts. John W. Lane, Boston; Charles Whelan, Hingham; Lieuts. Joseph C. Savage, Boston; Edmund A. Rogers, Brookline; Aimo N. Fregeau, Fitchburg; Nicholas A. Gallagher, Malden; William A. McCormick, New Bedford; Louis I. Skirball, Revere.

To his home and honorably discharged on account of being physically disqualified for active service, Lieut. Walter D. Berry, S. Weymouth.

MEXICO

Par. 9, Special Orders, No. 186, War Department, Aug. 11, 1917, as relates to Lieut. Ezra A. Lines, Piedros Negros, modified so as to direct him to Fort Oglethorpe.

MICHIGAN

To Camp Custer, Battle Creek, Mich., for duty, Lieut. Alford E. W. Yale, Pigeon.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers Training Camp, Capt. William B. Lunn, Marquette; Lieut. James H. Kelsey, Cassopolis.

To Camp Shelby, Hattiesburg, Miss., from Fort Benjamin Harrison, for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. David D. Todd, Calumet.

To Fort McHenry, Md., for duty in the surgical service, Lieut. George C. Hafford, Albion.

To Fort Oglethorpe, for instruction, Capt. Frank C. Kinsey, Grand Rapids; Lieuts. Abraham W. Hudson, Vincent S. Mancuso, John T. Watkins, Detroit; Willard R. Vaughan, Plainwell.

To Mineola, L. I., for duty in charge of the Division of Ophthalmology, section of surgery of the head in aviation, from Fort Benjamin Harrison, Capt. Donald E. MacPhrail, Wakefield.

To Rockefeller Institute, New York, for a course of instruction and upon completion of this course to return to his home and to the inactive list of the Medical Reserve Corps, Capt. Alexander M. Campbell and Lieut. John T. Hodgen, Grand Rapids.

To Washington University, St. Louis, Mo., for three weeks' intensive training, Major Peter D. MacNaughton, Calumet; Lieut. Albert S. Barr, Greenville.

Par. 1 of letter of Sept. 26, 1917 (4730), as relates to Lieut. John M. Carter, Detroit, be modified so as to relieve him from duty in the ophthalmic division, of the base hospital, Camp Wadsworth, and direct him to report in person to the commanding general of that camp for duty.

MINNESOTA

To Camp Bowie, Fort Worth, Tex., from Fort Snelling, Minn., for duty as a member of a board of medical officers for the special examination for tuberculosis, Lieut. Alexander Josewich, Minneapolis.

To Camp Dodge, Des Moines, Ia., from Fort Riley, for duty, Capt. John B. Robertson, Cottonwood; Lieuts. Ronald L. Laney, Brown Valley; James R. Elsey, Glennwood; Frederick A. Engstrom, Hills; William P. O'Malley, St. Paul.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers Training Camp, Lieut. Samuel T. Forsythe, Rochester.

To Camp Grant, Rockford, Ill., for duty, Lieuts. John R. Wood, Hallock; Harry M. Lowell, Rochester; Hugh W. Reynolds, Chatfield.

To Camp Lewis, American Lake, Wash., for duty, Lieut. Roy E. Swanson, Alexandria.

To Fort Oglethorpe for instruction, Lieuts. Percy A. Ward, Minneapolis; William J. Stock, Waconia.

To Rockefeller Institute, New York, for a course of instruction and upon completion of this course to return to his home and to the inactive list of the Medical Reserve Corps, Lieut. Thomas J. Snodgrass, Minneapolis.

To his home and return to the inactive list of the Medical Reserve Corps from duty in the Surgeon-General's Office, Major Charles H. Mayo, Rochester.

MISSISSPPI

To Camp Doniphan, Fort Sill, Okla., from Camp Greenleaf, Fort Oglethorpe, Ga., *and report in person to the commanding general* thereof and to the comanding officer of the base hospital for duty, Lieut. Thomas W. Holmes, Winona.

To Camp Funston, Fort Riley, Kan., *for duty,* from Medical Officers' Training Camp, Lieut. Oliver R. Fore, Flora.

To Camp Grant, Rockford, Ill., for duty with 35th Engineer regiment, from Camp Greenleaf, *Fort Oglethorpe,* Lieut. *John E.* McDill, Shaw.

To Camp Meade, Annapolis Junction, Md., for duty with 23d Engineer Regiment, from Camp Greenleaf, Fort Oglethorpe, Lieut. Leonidas F. Barrier, Greenwood.

To Camp Wheeler, Macon, Ga., for regimental duty, from Camp Greenleaf, Fort Oglethorpe, Lieut. Robert M. Leigh, Meridian.

To Fort Oglethorpe, for instruction, Lieuts. John S. Adams, Bay St. Louis, Ellis P. Burns, Ratliff.

Par. 9, Special Orders, No. 186, War Dept., August 11, 1917, as relates to Lieut. William C. Lester, *Isola,* is modified so as to direct him to Camp Greenleaf, *Fort* Oglethorpe.

MISSOURI

To Camp Bowie, Fort Worth, Tex., for duty, from Base Hospital, Lieut. Arthur C. F. Brown, Kansas City.

To Camp Dodge, Des Moines, Ia., from Fort Riley, for duty, Capt. Robert Middlebrook, Lieut. Evan S. Connell, Kansas City.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieuts. Fred. C. Albright, Bronaugh; Joseph Getelson, Zacharian G. Jones, Ward H. Leonard, John C. Lynch, Kansas City; Jasper LeR. Atherton, Springfield; Martin F. Kouri, St. Louis.

To Fort McHenry, Md., for duty, in the surgical service after completion of course at Rockefeller Institute, New York, Lieut. Hilen K. Wallace, St. Joseph.

To Fort Oglethorpe, for instruction, Capt. Oscar F. Baerens, St. Louis; Lieuts. George W. Rice, Kansas City; Abram E. Platter, Memphis; John M. Percy, Princeton; Martin H. Post, St. Louis.

To Kansas City, Mo., from Camp Wheeler, Macon, Ga., for the purpose *of examining* applicants for appointment in the Officers' Reserve *Corps,* Capts. Roger B. Brewster, Kansas City; for duty in connection with the Medical Reserve Corps of the Army and upon completion of *this duty to return to his proper station,* William H. Luedde, St. Louis.

To Minncola, L. I., N. Y., Signal Corps Aviation School, Hazlehurst Field, *from* Aero Squadrons at Fort Wood, N. Y., for duty, Lieut. Clyde O. Brown, St. Louis, *Mo.*

To Tenafly, N. J., *501st Batallion from Camo Mills, Lieuts.* Charles H. *Brown, Fair Play; for duty* from Army Medical School, Washington, D. C., Edward P. Heller, Kansas City.

To Washington, D. C., Army Medical School, *for instruction,* Lieut. Rollo P. Bourbon, St. Louis, Mo.

To Washington University, St. Louis, Mo., for three weeks' intensive training, Capts. Virgil Loeb, Charles A. Vosburgh, St. *Louis.*

Honorably discharged, Capt. Guy L. Noyes, Columbia; Lieut. Albert L. Evans, Bonne Terre.

To his home and return to the inactive list of the Medical Reserve Corps of the Army, Lieut. Montague M. Meyers, St. Louis.

MONTANA

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieuts. Lindsay W. Baskett, Baker; Cornelius B. Boyle, Eureka; Serge Androp, Richey.

To Camp Lewis, American Lake, Wash., for duty, Lieut. Carl L. Koehn, Red Lodge.

To Fort Oglethorpe for instruction, Lieuts. Joseph C. Denney, Clydepark; Charles B. Fleischmann, Froid; John J. Tobinski, Missoula; Stacy T. Noland, Warmsprings.

To Fort Russell, Wyo., for duty, Lieut. Ralph S. Hedges, Lewistown.

NEBRASKA

To Camp Dodge, Des Moines, *Iowa, from* Fort Riley, for duty, Lieuts. Charles E. Legg, Champion; Frank D. Ryder, Lyons; Charles F. Shock, Omaha; Harry L. Wells, West *Point.*

To Camp Funston, Fort Riley, Kan., for duty from Medical Officers' Training Camp, Lieut. Samuel Earl Metheny, Cairo.

To Camp Logan, Houston, Tex., *from Fort Riley,* for duty in the division of plastic and oral surgery, *section of* surgery of the head, Lieut. Frank M. Barns, Omaha.

To Camp Robinson, Sparta, Wis., from *the 17th* Field Artillery, Camp Robinson, for duty with the Provisional Recruit Batallion, 7th Field Artillery, Lieut. Frederick A. Van Buren, Omaha.

To Camp Taylor, Louisville, Ky., for duty *with the* Ambulance Co. No. 35, Lieut. Joseph A. Fleischman, Shelton.

To Fort Oglethorpe for instruction, Capts. Charles E. Remy, Ainsworth; Judd A. Strong, Kearney; Lieuts. *Neil P.* McKee, Atkinson; Dexter D. King, York, Laird W. Elwood, Weston.

To Kansas City, Mo., for a course of instruction in military roentgenology, Lieut. Joseph Antony, Burning.

To Mincola, L. I., Signal Corps Aviation School, Hazlehurst Field, from Aero Squadrons at Fort Wood, N. Y., for duty, Lieut. Ralph C. Christie, Clarks.

NEVADA

To Fort Douglass, Utah, for duty, Lieut. William T. Gleason, Ely.

To Fort Oglethorpe for instruction, Lieut. Only *J. Chaney,* McDermitt.

NEW HAMPSHIRE

To St. Elizabeth's Hospital, Washington, D. C., for a course of instruction in his specialty, Capt. Albert E. Brownrigg, Nashua.

To his home and return to the inactive list of the Medical Reserve Corps, Lieut. Clarence E. Dunbar, Manchester.

NEW JERSEY

To Camp Dix, Wrightstown, N. J., *for duty,* Capt. Joseph W. Williams, Paterson; for duty as assistant in the general surgical section, Lieuts. James B. Griswold, Morristown; for duty *in* the genito-urinary section, Charles H. deT. Shivers, *Atlantic City.*

To Camp Wheeler, Macon, Ga., from Camp Mills, for duty as member of the board of medical officers for tuberculosis examination, Lieut. Harvey M. Ewing, Montclair.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Lieuts. *Alfred* L. L. Bell, Englewood; Robert D. Schimelpfennig, Montclair.

To Fort Oglethorpe for instruction, Lieuts. Joseph Binder, Jersey City; Maurice Cohen, Paterson; Samuel T. Day, Jr., Port Norris; from duty with *Medical Officers* Training Camp and report to commanding officer for duty with 6th Infantry, Harvey S. Brown, Freehold.

To Madison Barracks, N. Y., for duty, Capt. Henry H. Mayne, *Lockport.*

To Newport News, Va., for duty with 304th Stevedore Regiment, from Fort Oglethorpe, Lieut. Julius Gerendasy, Elizabeth.

NEW YORK

To Boston, Mass., for instruction in orthopedic surgery and upon completion of this course to proceed to Philadelphia, Pa., Neurological School, University of Pennsylvania, for instruction in brain surgery, Lieut. Joseph E. J. King, New York City.

To Buffalo, N. Y., Rochester, N. Y., Utica, N. Y., for duty in connection with the Medical Reserve Corps of the Army and upon completion of this duty to return to his proper station, Capt. *Frederick* T. Van Beuren, New York City.

To Camp Bowie, Fort Worth, Tex., from Fort Benjamin Harrison, for duty as a member of the board of medical officers for tuberculosis examination, Lieuts. Herman Judkowitz, Brooklyn, and Robert E. Plunkett, Whitehall.

To Camp Custer, Battle Creek, Michigan, for duty, Lieut. Thomas G. Amos, New York City.

To Camp Dix, Wrightstown, N. J., for duty in the surgical service after completion of course at Rockefeller Institute, New York City, Capt. James W. Jameson, New York City.

To Camp Doniphan, Fort Sill, Okla., for duty, Capt. Frank G. Young, New York City; from Fort Slocum, N. Y., Lieut. Curtenine Gillette, New York City.

To Camp Funston, Fort Riley, Kan., for duty as assistant to the chief of the medical service, *Lieut. John J. Beard,* Cobleskill; for duty from Medical Officers' Training Camp, Lieut. Samuel W. Houston, Wolcott.

To Camp Greene, Charlotte, N. C., from Camp Mills, for duty as member of the board of medical officers for tuberculosis *examinations,* Capt. Geza Kremer and Lieut. Thomas F. Ellis, New York City.

To Camp Logan, Houston, Tex., for duty as a member of a board of medical officers for tuberculosis examination, from Fort Benjamin Harrison, Capt. Gilbert W. Crissey, Mechanicsville.

To Camp McClellan, Anniston, Ala., for duty, after completion of course at Rockefeller Institute, New York City, Capt. Edward M. Colie, New York City.

To Camp Meade, Annapolis Junction, Md., for the purpose of conferring with the Division Surgeon in connection with the mental and nervous examinations, Major Pearce Bailey, New York City.

To Camp Sevier, Greenville, S. C., for duty in the division of otolaryngology, section of surgery of the head, from Base Hospital, Lieut. George F. Gracey, *New* York City.

To Camp Taylor, Louisville, Ky., from Camp Mills, Garden City, L. I., for the purpose of examining the troops in his specialty, Capt. Morris J. Karpas, New York City.

To Camp Travis, Fort Sam Houston, Tex., for the purpose of making *examinations* in his specialty, from Neurological Institute, New York City, Lieut. Augustus B. Dykman, Poughkeepsie.

To Camp Upton, Yaphank, L. I., Camp Dix, Wrightstown, N. J., *and report in person* to the commanding general for conference with the division surgeon and psychiatrist at these stations, Major Pearce Bailey, New York City.

To Camp Upton, Yaphank, L. I., for duty in connection with the division of otolaryngology, section *of* surgery of the head, Lieut. Owen R. O'Neill, New York City.

To Camp Wheeler, Macon, Ga., from Fort Benjamin Harrison, *Ind.,* *for* duty in the division of plastic and oral surgery, section of *surgery* of the Head, Capt. Francis R. Lyman, Hastings-on-Hudson; *from Camp* Mills, for duty as member of the board of medical officers for tuberculosis examinations, Capt. Stanmore L. Cash, *New* York City; Lieut. Frank McLean, New York City; *from* Camp Greenleaf, *Fort* Oglethorpe, Ga., *for* regimental duty, Lieut. Henry S. Fruitnight, New York City.

To Cornell Medical College, New York City, *for duty* as assistant *instructor* in military roentgenology, Capt. Frederick M. Law, New York City; for a course of instruction in military *roentgenology,* Lieuts. Theodore S. West, Albany; Barnett *Aronson,* and Max Mensch, Brooklyn; Samuel Tripler, New York City; Abraham Lebendig, Rochester; and Herbert deG. Sherman, White Plains.

To Fort Adams, Rhode Island, *for duty,* Capt. James E. Holden, Collins.

To Fort Benjamin Harrison, Indiana, *for instruction,* Maj. Linsley R. Williams, New York City.

To Fort Ethan Allen, Vt., *for* duty, *Capt.* Edward G. Clifton, New York City.

To Fort McPherson, Ga., for duty at the Base Hospital, Lieut. Karl M. Bowman, White Plains; for duty in orthopedic service, Lieut. Earl C. MacCordy, Amsterdam.

To Fort Oglethorpe, Ga., for a course of instruction, Capts. Arthur R. Green, Mt. Kisco; Ira Cohen, Geo. D. Hamlen, and James C. Harkins, New York City; Alexander C. Calisch, Oswego; Lieuts. Conrad A. Rissberger, Albany; Nelson M. Holden, Francis B. Ring, and Benjamin E. Spiegel, Brooklyn; Jerome A. Murphy and Alfred H. Vogt, Buffalo; Ernest G. Gilmore, Johnstown; Herbert F. Jackson, Edmond C. Linton, Aloysius M. Mulholland, Robert E. Pound, Nathan Rosenthal, Harold B. Scovern, Robert E. Walsh, and Charles Wolf, New York City; Lawrence D. Cremin, Ossining, and Fred Vosburgh, Standish; after completion of course at Rockefeller Institute, New York City, Lieut. Roscoe C. Webb, New York City.

To Fort Slocum, N. Y., for duty, Capt. Ira A. Allen, Ludlowville; for the purpose of examining recruits and troops in his specialty, Lieut. Abraham Skversky, New York City.

To Fort Wayne, Mich., for duty from Fort Benjamin Harrison, Lieuts. John J. Lancer and Milton R. Walter, New York City.

To Langley Field, Hampton, Va., Aviation School, for duty, from Newport News, Va., Lieut. Joseph C. Coleman.

To Mineola, L. I., N. Y., Signal Corps, Aviation School, Hazlehurst Field, from Aero Squadrons at Fort Wood, N. Y., for duty, Lieut. Scott R. Fisher, Syracuse.

To Neurological Institute, New York City, for a course of intensive study in his specialty, Capt. Ira Cohen, New York City.

To Newport News, Va., for duty with the 302d Stevedore Regiment, Capt. Charles W. Selover, Stanley; Lieuts. Emanuel M. Freund, Albany, and Benjamin H. Dike, Rochester.

To New York City, Islip, Long Island, Nyack, Harmon, Peekskill, Tuxedo, N. Y.; Norwalk, Conn.; Iselin, N. J., for inspecting hospital sites and then return to proper station, Major Thomas W. Salmon.

To New York City, for a course of instruction in orthopedic work and upon completion of this course to return to his proper station, from Fort Oglethorpe, Capt. Lee B. Meyer, New York City.

To Rockefeller Institute, New York City, from Fort Benjamin Harrison, for instruction and upon completion of this course to return to his home and to inactive list of the Medical Reserve Corps, Lieut. Henry L. Wenner, Jr., New York City.

To St. Elizabeth Hospital, Washington, D. C., for a course of intensive study in his specialty, Lieut. John Miller, New York City.

To St. Louis, Mo., School of Plastic and Oral Surgery, Washington University, from Fort Benjamin Harrison, for three weeks' intensive training, Capt. Robert T. Frank, New York City.

To Walter Reed General Hospital, Takoma Park, D. C., for duty as surgical assistant, Lieut. Maurice D. Barnette, Watertown.

To Washington, D. C., and report in person to the Surgeon-General of the Army for duty in his office, Major Thomas W. Salmon, New York City.

To Washington University, St. Louis, Mo., for three weeks' intensive training, Capt. Samuel L. Fisher, Brooklyn; Lieut. John L. Edwards, Hudson; from Fort Slocum, N. Y., and upon completion to return to his proper station, Lieut. Richard T. Atkins, New York City.

To his home from duty at Camp Merritt, N. J., and return to the inactive list of the Medical Reserve Corps of the Army on account of being physically disqualified for active service, Capt. Daniel W. Wynkoop, Babylon.

To his home and the inactive list of the Medical Reserve Corps from duty at Fort Monroe, Va., on account of being physically disqualified for active service, Lieut. Edward D. Fraser, Brooklyn.

NEW MEXICO

To Camp Cody, Deming, N. M., for duty, Capt. Henry R. Brown, Albuquerque.

To Camp Lewis, American Lake, Wash., for duty as tuberculosis specialist and member of the Army Medical Staff, Capt. David C. Twichell, Albuquerque.

NORTH CAROLINA

To Camp Gordon, Atlanta, Ga., for duty as chief of the surgical service, Capt. James S. Brown, Hendersonville.

To Camp Greene, Charlotte, N. C., and report in person to the commanding general and to the commanding officer of the base hospital for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. Charles W. Banner, Greensboro.

To Camp Sevier, Greenville, S. C., for duty in connection with orthopedic work, Lieut. Robert A. Moore, Charlotte.

To Fort Moultrie, S. C., for duty, Lieut. Mont R. Farrar, Greensboro.

To Fort Oglethorpe for instruction, Lieuts. Carl W. Bell, Raleigh; Edgar P. Norfleet, Roxobel; Thomas H. Royster, Tarboro; John B. Powers, Wake Forest; William T. Ruark, Wilmington.

To Richmond Medical College for a course in military roentgenology, Lieut. Henry C. Turlington, Cooper.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. Matthew L. McCorkle, Newton.

To his home and return to the inactive list of the Medical Reserve Corps of the Army, on account of being physically disqualified, Lieut. Joseph R. Shull, Cliffside.

NORTH DAKOTA

To Camp Dodge, Des Moines, Ia., for duty, Lieuts. Julius O. Arnson, Bismarck; Mark Mizener, Bowman.

To Fort Oglethorpe for instruction, Lieut. Howard L. Saylor, Cogswell.

To State Psychopathic Hospital, Ann Arbor, Mich., for intensive study in his specialty, Capt. Adolphus W. Guest, Jamestown.

OHIO

To Camp Bowie, Fort Worth, Tex., for duty, Lieut. Douglas R. Venable, Cleveland.

To Camp Cody, Deming, N. M., for duty, Capt. Henry R. Brown, Chillicothe.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieuts. William M. Goff, Marysville; Myron Hanna, Scott.

To Camp Sherman, Chillicothe, O., for duty, Capt. Elmore E. Adel, Columbus; Lieuts. Daniel C. Handley, Cincinnati; George F. Glass, Cleveland; Edward D. Harper, Guysville; for temporary duty, Anthony Matuska, Cleveland; Clark E. Sharp, Columbus.

To Fort Oglethorpe for instruction, Capt. Paul G. Woolley, Cincinnati; Claude D. Hamilton, Canton; Charles G. LaRocco, Lewis A. Oster, Cleveland; Harold K. Mouser, Marion; Neville E. Stewart, Wauseon; William McG. Blaine, Youngstown.

To Fort Sheridan, Ill., for duty, Capt. Joseph S. Rardin, Portsmouth.

To Jefferson Barracks, Mo., for duty, Capt. Harry T. Miller, Springfield.

To Washington University, St. Louis, Mo., for three weeks of intensive training, from Allentown, Pa., Capt. Frederick J. Bierkamp, Youngstown.

OKLAHOMA

To Camp Bowie, Fort Worth, Tex., for duty, from Base Hospital, Lieuts. George M. McVey, Verden; Will W. Jackson, Vinita.

To Camp Doniphan, Fort Sill, Okla., for duty, Lieut. John B. Haggard, South Coffeyville.

To Camp MacArthur, Waco, Tex., for duty in charge of the division of brain surgery, section of surgery of the head, Capt. Robert M. Howard, Oklahoma.

To Camp Merritt, N. J., for duty, from Army Medical School, Lieut. Davy Lewis Garrett, Altus.

To Camp Vail, Little Silver, N. J., for duty with the 11th Telegraph Reserve Battalion, Lieut. Willis K. West, Oklahoma.

To Fort Oglethorpe for instruction, Lieuts. Samuel T. Campbell, Anadarko; James R. Bost, Cashion; Roland R. Culbertson, Hoyt.

To Kansas City, Mo., for course of instruction in military roentgenology from Ft. Riley, Lieut. Daniel E. Little, Eufaula.

To report in person to the commanding general, Camp MacArthur, Tex., for duty in the surgical service, Lieut. William G. Hushund, Gould.

OREGON

To Camp Dodge, Des Moines, Ia., from Fort Riley for duty, Capt. Joseph A. Pargon, Portland.

To Camp Lewis, American Lake, Wash., for duty, Lieut. Arthur C. McCown, Cove.

To Fort Oglethorpe for instruction, Lieut. Harry M. Bouvy, La Grande.

To Washington University, St. Louis, Mo., for a three weeks' course of intensive training, Capt. Justin M. Waugh, Hood River.

To report in person to the commanding general, Camp Lewis, American Lake, Wash., for duty as assistant in the surgical service, Capt. Paul Rockey, Portland.

PENNSYLVANIA

To Buffalo, N. Y., Rochester, N. Y., Barre, Vt., Manchester, N. H., Brooklyn, N. Y., for duty in connection with the Medical Reserve Corps of the Army and on completion of this duty to return to his proper station, Major Henry D. Jump, Philadelphia.

To Camp Dix, Wrightstown, N. J., for duty, Lieut. James E. James, Plymouth.

To Camp Dodge, Des Moines, Ia., from Fort Riley, for duty, Lieut. William H. Kober, Pittsburgh.

To Camp Grant, Rockford, Ill., for duty with 35th Engineer Regiment, from Fort Oglethorpe, Lieut. Clark H. Yeager, Wilkes-Barre.

To Camp Hancock, Augusta, Ga., for duty in the surgical service, after completion of course of instruction at Rockefeller Institute, New York, N. Y., Capt. David H. Boyd, Pittsburgh; for duty as member of board of medical officers for tuberculosis examination, from Walter Reed General Hospital, Lieut. William G. Spalding, Cresson.

To Camp Lee, Petersburg, Va., for duty, Lieuts, Llewellyn I. Thomas, Burnham; Charles B. Dotterrer, Boyertown; Adam M. Robinhold, Hamburg; for temporary duty, Herbert F. Kenny, Pittsburgh.

To Camp Meade, Annapolis Junction, Md., for duty, Capt. Edward M. Haley, Blossburg; Lieut. Charles S. Fox, Philadelphia.

To Camp Mills, Garden City, L. I., for duty at Base Hospital, from duty at Field Hospital No. 3, Lieuts. George H. Tibbins, Beach Creek; for duty, Lieut. William W. Van Dolson, Philadelphia.

To Camp Pike, Little Rock, Ark., for the purpose of examining troops in his specialty, Capt. Percy DeLong, Cynwyd.

To Camp Sevier, Greenville, S. C., for duty in the Division of otolaryngology, section of surgery of the head, from duty at Base Hospital, Major George M. Coates, Philadelphia.

To Camp Vail, Little Silver, N. J., for duty, Lieut. John V. Kearney, Philadelphia.

To Camp Wheeler, Macon, Ga., for regimental duty, from Fort Oglethorpe, Lieuts. Nicholas E. Abbaticohio, Bert F. Ober, Latrobe; Charles M. McCoy, Lewistown; Amos K. DuBell, William H. McKeever, Philadelphia; Frank R. Wheelock, Scranton.

To Chicago, Ill., for the purpose of conferring with the State Committee of National Defense Medical Section, and upon completion of this duty to return to his proper station, Major Henry D. Jump, Philadelphia.

To Fort McPherson, Ga., for duty at the Base Hospital, Capt. Earl D. Bond, Philadelphia; Victor J. P. Jourdan, Bristol.

To Fort Oglethorpe for instruction, Capt. John F. McCloskey, Philadelphia; Lieuts. Andrew J. W. Hanwork, Altoona; Carlos P. Holcomb, Athens; Thomas I. Cotton, Carnegie; Ray H. Parker, Ehrenfeld; John P. Maus, Norristown; Toby Anthony Creco, Philadelphia; Burns S. Chaffee, John E. Newhouse, Dennis E. Szabo, Pittsburgh; Howard S. Smith, Reinholds Station; Le DeLance Parry, Rock Glen; Albert J.

Winebrake, Scranton; James G. Strickland, Shamokin; for instruction after completion of course at Rockefeller Institute, New York, Hubley R. Owen, Philadelphia; for duty with the 51st Infantry, from Medical Officers' Training Camp, Frederick B. Allen, Worth Wales.

To Fort Slocum, N. Y., for duty, Lieut. Charles H. Cloud, Philadelphia.

To Jefferson Hospital, Philadelphia, for a course of instruction in military roentgenology, Lieut. Agnew F. Frankhauser, Philadelphia.

To Madison Barracks, New York, for duty, Capt. Sidney K. Fenollosa, Pittsburgh.

To Mineola, L. I., N. Y., Signal Corps, aviation school, Hazlehurst Field, from aero squadrons at Fort Wood, N. Y., for duty, Lieuts. James E. Dull, Somerset; Forest A. Beck, Wind Gap.

To Newport News, Va., for duty with 303d Stevedore Regiment, from Fort Oglethorpe, Lieuts. Charles J. Shillott, Columbia; Wilbur E. Turner, Montgomery.

To Pittsburgh, in charge of the physical examining unit, aviation section, Signal Officers Reserve Corps, Capt. William C. Meaner, Pittsburgh.

To Richmond Medical College, Richmond, Va., for a course of instruction in military roentgenology, Lieut. William B. Trexler, Fullerton.

To Rockefeller Institute, New York, N. Y., for instruction, from duty at Fort Benjamin Harrison, and on completion of this course to proceed to Washington University, St. Louis, Mo., for further instruction, Capt. Ernest M. Vaughan, Royersford.

To report in person to the commanding officer repair shop unit, Quartermaster's Corps, Washington, D. C., for duty, from Army Medical School, Lieut. Maurice V. Brant, Cairnbrook.

To University of Pennsylvania, Philadelphia, for duty in connection with the investigation of treatment of infected wounds, Capt. William H. Furness, Wallingford.

To Washington University, St. Louis, Mo., for three weeks' course of intensive training, Lieuts. William Bates and Irvine M. Boykin, Philadelphia.

To their homes and return to the inactive list of the Medical Reserve Corps, Majors Walter S. Cornell and John H. Jopson, Lieuts. Charles S. Rottner, Philadelphia; John J. Dailey, McAdoo.

Honorably discharged from Medical Reserve Corps on account of holding commissions in the Pennsylvania National Guard, Majors George M. Coates and Ross H. Skillern, Philadelphia; on account of being physically disqualified for active service, Lieut. George H. Tibins, Beech Creek.

PHILIPPINE ISLANDS

To Camp Gordon, Atlanta, Ga., from Fort Russell, Wyo., for the purpose of examining the troops in his specialty, Lieut. Louis V. J. Lopez, Silay.

To Philippine Islands, Philippine Dept., for duty, Capt. Almon P. Goff, Manila.

SOUTH CAROLINA

To Camp Grant, Rockford, Ill., for duty with 35th Engineer Regiment from Fort Oglethorpe, Lieut. James M. Oliver, Orangeburg.

To Camp Wheeler, Macon, Ga., for duty in charge of the division of brain surgery, section of surgery of the head, Capt. Samuel C. Baker, Sumter.

To Fort Des Moines, Ia., for instruction, Lieut. Dan M. Moore, Enoree.

To Fort Oglethorpe for instruction, Capt. Theodore C. Stone, Aiken; Lieuts. Lawrence R. Kirkpatrick, Bennettsville; Julius D. Eaddy, Lake City; Karl L. Able, Leesville.

SOUTH DAKOTA

To Camp Dodge, Des Moines, Ia., from Fort Riley, for duty, Lieut. Burt A. Dyar, De Smet.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieut. Maurice O. Pemberton, Deadwood.

To Camp Grant, Rockford, Ill., for temporary duty, Lieut. Henry J. T. Ince, Rapid City.

To Fort Oglethorpe, for instruction, Lieut. Willard A. Bates, Northville.

To report in person to the commanding officer of the base hospital for duty, from Camp Bowie, Fort Worth, Tex., Lieut. Glenn V. Sigler, Highmore.

To his home from Camp Pike, Little Rock, Ark., and return to the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. James P. Valby, Viborg.

TENNESSEE

To Camp Dodge, Des Moines, Ia., from Fort Riley, for duty, Lieut. Benjamin G. Allen, Chattanooga.

To Camp McClellan, Anniston, Ala., for duty in charge of the division of brain surgery, section of surgery of the head, Major Lucius E. Burch, Nashville.

To Camp Meade, Annapolis Junction, Md., for temporary duty, Lieut. Allen L. Lear, Sewanee.

To Camp Vail, Little Silver, N. J., for duty, Lieut. Cleveland Payne, Oakland.

To Camp Wheeler, Macon, Ga., for duty with Ambulance Companies, from Fort Oglethorpe, Lieut. Joseph P. Delabet, Arrington.

To Fort Oglethorpe for instruction, Capt. Bernard C. McMahon, Memphis; George A. Hatcher, Nashville; Leslie T. Bolton, Lucy; Maurice L. Connell, Ridgetop; with 23d Cavalry (F. A.) from Medical Officers' Training Camp, Samuel S. Caruthers, Nashville.

To Newport News, Va., for duty with 304th Stevedore Regiment from Fort Oglethorpe, Lieut. George R. McSwain, Paris.

To his home and honorably discharged from duty at Fort Des Moines, Ia., Lieut. William G. Raby, Memphis.

TEXAS

To Camp MacArthur, Waco, Tex., for duty as a member of a board of officers for tuberculosis examinations, Lieut. John T. Bernard, Dallas.

To Camp Travis, Fort Sam Houston, Tex., for temporary duty, Lieuts. Edgar V. Henry, Coleman; for duty, Sneed Strong, Dallas; Thomas H. Standlee, Lyra.

To Fort Oglethorpe for instruction, Capts. Jesse L. Womack, Lolita; Thomas A. Martin, Lorane; Lieuts. Dana E. Monro, Cameron; Edward J. Burns, Carrizo Springs; Talbert M. Hall, Osage; David C. Williams Post; Earl L. Sharp, Willis.

To Fort Sam Houston, Tex., for duty, Lieut. Thad Shaw, San Antonio.

To New York, and report in person to Major F. H. Albee, 40 E. 41st Street, New York, for a course of instruction, from Rockefeller Institute, New York, Major Charles S. Venable, San Antonio.

To report by telegraph to the commanding general Southern Dept., for assignment to duty, Lieut. William C. Barnard, Corpus Christi.

Honorably discharged on account of inaptitude for the service, Lieut. Squire M. Henry, Southland.

UTAH

To Fort Oglethorpe for instruction from Allentown, Pa., Lieut. James M. Graham, Fruita.

To his home, and return to inactive list of Medical Reserve Corps, on account of being physically disqualified for active service, from Letterman General Hospital, Presidio of San Francisco, Capt. Thomas A. Flood, Salt Lake City.

VERMONT

To Boston, for instruction in military roentgenology, Lieut. Frank C. Angell, Rudolph.

VIRGINIA

To Boston, Mass., for a course of instruction in orthopedic surgery, Lieut. Samuel B. Cary, Roanoke.

To Camp Greene, Charlotte, N. C., for duty in charge of the division of brain surgery, section of surgery of the head, Capt. Lomax Gwathmey, Norfolk.

To Fort Monroe, Va., for duty in division of ophthalmology and otolaryngology, section of surgery of the head, Lieut. Frank D. Willis, Newport News.

To Fort Oglethorpe, Ga., for instruction, Capt. Stanley H. Graves, Norfolk, and Lieut. Leslie T. Rusmiselle, Lovettsville.

To Richmond Medical College, Richmond, Va., for a course of instruction in military roentgenology, Lieuts. John L. Tabb, Jr., Midlothian; Fayette A. Sinclair, Newport News; and Samuel A. Rhyne, Norfolk.

To Washington University, St. Louis, Mo., School of Plastic and Oral Surgery, for three weeks' course of intensive training, Lieut. Forsey G. Tyler, Richmond.

WASHINGTON

To Camp Lewis, American Lake, Wash., for duty as assistant chief of the medical service, Capt. Charles S. Wilson, Tacoma; for duty, Capts. Robert N. Tooker, Seattle; and Ira A. Nelson, Spokane; Lieut. Charles R. McCreery, Tacoma; for duty as Chief of the Surgical Service, from duty at Base Hospital, Lieut. Horace J. Whitacre, Tacoma.

To Camp Robinson, Sparta, Wis., for duty with the 17th Field Artillery, Capt. Ira C. Brown, Seattle.

To report in person to the commanding officer, Repair Shop Unit, Quartermaster's Corps, Washington, D. C., for duty, from Army Medical School, Capt. Francis W. Anderson, South Bend.

WEST VIRGINIA

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieut. Charles N. Brown, Elizabeth.

To Fort Oglethorpe, Ga., for instruction, Capt. David Hott, Morgantown; Lieuts. Harvey C. Powell, Morgantown; and Harold H. Talbott, Weirton.

WISCONSIN

To Camp Beauregard, Alexandria, La., for the purpose of making examinations in his specialty, and upon completion of this duty to return to his home and to the inactive list of the Medical Reserve Corps, Capt. Oscar E. Lademan, Milwaukee.

To Camp Dodge, Des Moines, Ia., from Fort Riley, for duty, Lieuts. Donne F. Gosin, Greenbay; James C. Tyvand, Whitehall; and Howard C. Miller, Whitewater.

To Camp Funston, Fort Riley, Kan., for duty, from Medical Officers' Training Camp, Lieuts. Judson A. Palmer, Arcadia; Frederick N. Ferguson, Elroy; William A. Joseph, Hancock; Norman O. Nelson, Madison; Richard W. A. Dehmel, South Germantown; and George R. Baker, Tomahawk.

To Camp MacArthur, Waco, Tex., from Fort Riley, for duty in the division of plastic and oral surgery, section of surgery of the head, Lieut. Max Bornstein, Milwaukee.

To Camp Robinson, Sparta, Wis., for duty, Lieut. Thomas C. Clarke, Oconto.

To Colon Hospital, for duty, from Fort Randolph, Canal Zone, Lieut. Robert L. Bowen, Oshkosh.

To Fort Oglethorpe, Ga., for instruction, Lieut. G. H. Schlenker, Cazenovia.

To Neurological Institute, New York City, for a course of intensive training in his specialty, Lieut. Smiley Blanton, Madison.

To Washington University, St. Louis, Mo., for three weeks' intensive training, from Fort Riley, and upon completion to return to his proper station, Capt. Gustaf R. Egeland, Sturgeon Bay.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

Bill Compromised.—For work done in connection with the threatened epidemic of spinal meningitis in the naval training camp at Balboa Park, San Diego, the city health authorities rendered a bill for $1,500 against the United States government. The bill occasioned considerable discussion by the members of the health board and the naval authorities. It was finally compromised by the government paying the city $650.

Personal.—Dr. T. Brailsford Robertson, professor of biochemistry and pharmacology in the University of California, has donated to the university his patent rights in the product "Tethelin," isolated from the anterior lobe of the pituitary body and believed to control growth of cells, and to be capable of accelerating repair in slowly healing wounds. All profits resulting from this discovery are to constitute an endowment, the income to be applied to medical research.——Dr. Alfred E. Banks, health officer of San Diego, has resigned and resumed private practice. He has recommended that Dr. William W. Crawford be appointed his successor.——Dr. Ralph W. Nauss, Fresno, the newly appointed state district health officer, has established headquarters for the central district in Fresno.

GEORGIA

Personal.—Dr. William L. Funkhouser has moved from Rome to Atlanta, and will devote himself exclusively to the treatment of children.——Dr. John E. Toole has been elected mayor of Bainbridge.——Dr. Albert Fleming, Waycross, has been reappointed a member of the State Board of Examiners.

Tuberculosis Clinic in Savannah.—The Central Council of Charitable and Philanthropic Organizations of Savannah has advocated the immediate establishment of a free tuberculosis clinic in Savannah, and a committee, whose chairman is Rev. S. B. McGlohan, will act with a committee from the Georgia Medical Society, headed by Dr. James O. Baker, for the accomplishment of this much needed charity.

IDAHO

Personal.—Dr. Joseph H. Murry, surgeon of the Oregon Short Line Railroad, Nampa, has resigned, and Dr. Frank B. Smith has been appointed his successor.

Contract Let for Sanatorium.—The contract for the construction, completion and equipment of the main building of the Idaho State Sanatorium, Nampa, has been awarded for $23,800.

ILLINOIS

Personal.—Dr. Alice Barlow Brown, Winnetka, has arrived at Toulouse, France, where she is to establish a free dispensary for women and children which is supported by the women of Winnetka, and the American Fund for French Wounded.——Dr. Max C. Hawley, Elgin, has been appointed superintendent of the Watertown State Hospital.——Dr. George Parker, medical director of the Peoria Life Insurance Company, has entered on the duties of commissioner of health of Peoria, succeeding Dr. Emmett A. Garrett, called to war service.——Dr. Emil Bunta, Chicago, has been appointed a member of the staff of the Oak Forest Infirmary.

INDIANA

New Surgeries Opened.—The north annex and new surgeries of the Methodist Episcopal Hospital, Indianapolis, were formally dedicated, October 14 and 15. The north wing of the hospital was completed last year, but had never been formally dedicated. The new surgical operating rooms have just been completed at a cost of $40,000.

Sanatorium To Do Outpatient Work.—The directors of the Marion County Medical Society for the Prevention of Tuberculosis have decided to buy an automobile for the use of the outpatient department of Sunnyside Sanatorium. This will enable Miss Gaskill, nurse at the head of this department, to visit tuberculosis patients in all parts of the county in order to advise and keep in touch with them after their discharge from the sanatorium.

Personal.—Dr. Abner H. Shaffer, Huntington, fell in his home, October 5, fracturing his hip.——Dr. Lewis P. Drayer, Fort Wayne, has been appointed secretary of the city health board, succeeding Dr. John H. Gilpin, resigned to enter the military service.——Dr. Daniel F. Randolph, Waldron, was seriously injured recently in an automobile accident in Van Buren Township.

Section Officers.—At the recent meeting of the Indiana State Medical Society, Dr. Charles P. Emerson, Indianapolis, was elected chairman of the medical section, and Dr. Jane M. Ketcham, Indianapolis, secretary. Dr. Ludson Worsham, Evansville, was elected chairman of the surgical section, Dr. Goethe Link, Indianapolis, vice chairman, and Dr. Howard O. Shafer, Rochester, secretary.

Memorial to Dr. Bobbs.—At Indianapolis, October 11, in the medical section of the new $6,000,000 library building, a bronze tablet was erected in honor of the memory of Dr. John Stough Bobbs, a pioneer surgeon of Indiana. In the dedication of the tablet, addresses were made by Dr. Henry Jameson, of the Medical Department of the University of Indiana, formerly dean of the Indiana Medical College, founded by Dr. Bobbs; by Louis Howland, editor of the Indianapolis *News*, and by Dr. Hillary Gobin, president of De Pauw University, who was for three years secretary to Dr. Bobbs. Dr. Bobbs was born in 1809 and died in 1870. In addition to the founding of the Indiana Medical College in which he was a teacher until his death, he was also one of the founders of the state medical society, donated a medical library to the physicians of Indiana, endowed a dispensary which is now the Indianapolis City Dispensary, and was a brigade surgeon during the Civil War, and helped to carry from the field and care for wounded soldiers at the Battle of Bull Run. The memorial addresses credited Dr. Bobbs with being one of the great surgeons of America. The bronze tablet, executed by Gutzon Borgulum, is 6 feet by 3½ feet in size, bears in bas relief the figure of Dr. Bobbs, and the following inscription: "Illustrious Surgeon, Patriotic Citizen, Self-Sacrificing Benefactor, Servant of God through Service to Mankind. First to perform the operation of cholecystotomy." That Dr. Bobbs was the originator of the operation of opening the gallbladder is fully attested. The work of securing funds and carrying out the establishment of the memorial was in the hands of a committee consisting of Drs. Henry Jameson, Alembert W. Brayton, William N. Wishard, John H. Oliver and Frank B. Wynn, some of the members having been associates of Dr. Bobbs.

MARYLAND

Typhoid Cases Increase.—Twenty-six new cases of typhoid fever were reported to the Health Department of Baltimore during the week. There were four deaths from the disease. The *Health Bulletin* also reports 189 deaths in Baltimore, for the week, and 300 births.

Personal.—Dr. Archibald C. Harrison, director of the University of Maryland Base Hospital Unit, was recently operated on by Dr. Thomas S. Cullen in St. Joseph's Hospital for acute abdominal trouble.——Miss Mary L. Kelly, assistant superintendent of nurses of the Health Department of Baltimore, has been appointed assistant bacteriologist of the health department.——Dr. Harry F. Shipley, Granite, was seriously injured, September 13, by the overturning of his automobile near Gwynn Oak; he sustained a fracture of the clavicle and two ribs.——Dr. Karl H. Van Norman, formerly assistant superintendent of Johns Hopkins Hospital, who resigned in November, 1915, for war service with the Canadian forces and was placed in charge of a base hospital in Ramsgate, England, and later was made assistant chief of the Canadian hospitals in England, has returned to this country to recuperate, and is in temporary charge of the Canadian recruiting station at Minneapolis.

MASSACHUSETTS

Health Department Moves.—New headquarters have been opened for the state department of health on the fifth floor of the state house, and the water, sewerage, food and drug laboratories are on the same floor.

Personal.—Dr. Philip Castleman has been appointed deputy health commissioner of Boston, and Dr. Honore Van de Velde, assistant director of pathologic laboratories in the health department.——Dr. M. Victor Safford, U. S. P. H. S., has been appointed epidemiologist of the Boston Health

Department.——Lieut. Harry R. Coburn, M. R. C., in charge of the men's department of the Tewksbury State Hospital, was given a farewell dinner, September 7, at which he was presented with a wrist watch.——Dr. Frank H. Carlisle, Wrentham, assistant superintendent of the Norfolk State Hospital, Pondville, for ten years past, has accepted an appointment as medical director of the Massachusetts Farm, Ridgewater.

MICHIGAN

New Officers.—At the annual meeting of the Wayne County Medical Society, held in Detroit, Dr. Warren L. Babcock was elected president, Dr. Clarence E. Simpson, vice president; Dr. Raymond C. Andries, secretary, and Dr. William H. Morley, treasurer.

State Board Members.—The following appointments are announced by the governor for membership in the Michigan State Board of Registration in Medicine: Dr. Guy L. Conner, Detroit, to succeed Dr. Colonel B. Burr, Flint; Dr. William S. Shipp, Battle Creek, to succeed Dr. William T. Dodge, Big Rapids, and Drs. Albertus Nyland, Grand Rapids, and Nelson McLaughlin, Lake Odessa, to succeed themselves.

Personal.—Dr. Edwin R. Vander Slice, Lincoln, for two years physician for the state board of health tuberculosis survey, has been appointed executive secretary of the Michigan Antituberculosis Association.——Dr. Eloise Walker, Binghamton, N. Y., has been appointed physician to the University of Michigan, health service, succeeding Dr. Elsie S. Pratt, Denver.——Dr. Richard M. Olin, secretary of the state board of health, Caro, has moved to Lansing.——Application has been made for a sanitary commission to examine Dr. Ralph E. Gustin, Detroit, who is said have been recently sentenced to serve one year for manslaughter.——Dr. William C. Bell has been appointed police surgeon of Detroit, succeeding Dr. Griffith A. Thomas, resigned to take command of an ambulance company at Fort Sherman, Chillicothe, Ohio.

MINNESOTA

Health League Trains Nurses.—The Minnesota Public Health Association announced that it will expend $8,000 for the training of graduate nurses to do visiting work in towns and rural communities.

Personal.—Dr. George E. Putney, Paynesville, has been appointed a member of the State Board of Medical Examiners, succeeding Dr. Pierre C. Pilon, Paynesville, resigned to enter the Army.——Dr. Arthur T. Laird, superintendent and secretary of the Nopeming Sanatorium, Duluth, has been appointed by the Rockefeller Foundation to do tuberculosis work in France.

Hospital Items.—St. Peter's new hospital, known as the Field Hospital and Sanitarium, was opened for patients, October 1. The formal opening took place a week later. The building at present accommodates fifteen patients, and is under the charge of Dr. Merton Field.——Dr. Philip E. Stangl, formerly of St. Cloud, has assumed charge of the Paynesville Hospital.——Work on the new Itasca County Hospital, Grand Rapids, has been begun, and under the terms of the contract the building must be completed before April 1, 1918.

NEW YORK

Oppose Institution at Lake Mohansic.—For several days the joint legislative committee has been taking testimony in order to reach a decision as to the disposition to make of the 1,000-acre site bought for a state hospital and home for juvenile delinquents. Protests against having any buildings on this site have been made by the commissioner of the board of water supply and representatives of the New York Academy of Medicine, the real estate board, the Safety First Society, the Central Mercantile Association, and by a number of other civic bodies.

New York City

Carpenter Lecture.—The Wesley M. Carpenter lecture was delivered at the New York Academy of Medicine, October 18, by Dr. William J. Mayo, Rochester, Minn., on "The Relation of the Spleen to Some Obscure Clinical Phenomena."

To Organize Vital Economics Work.—John R. Murlin, for eight years assistant professor of physiology in the Medical School of Cornell University, has been appointed director of the new Department of Vital Economics [illegible] of Rochester. This department has been endowed with funds made available by the will of Lewis E. Ross.

Surgical Conference.—Professor Campbell announces that a surgical conference will be held in the amphitheater of Long Island College Hospital, Brooklyn, every Wednesday afternoon at 3 o'clock. The subject for October 10 was "Hernia."

Draft Physician Punished.—Dr. Henry Seligman, Brooklyn, is said to have been convicted, October 3, of a conspiracy to cause the evasion of the selective draft law, and to have been sentenced to two years' imprisonment in the United States Penitentiary, Atlanta, and to pay a fine of $3,000.

New School for Nurses.—Largely as a result of the appeal of the Council on National Defense that all hospitals in the country increase their educational facilities for training nurses, Bellevue Hospital School for Training Nurses has opened a school for students who do not live at the hospital. There will be no tuition charge, and textbooks and uniforms will be furnished to applicants. The training will cover forty-eight hours each week. The students must have a high school or college education.

Merger of Three Hospitals Planned.—At a conference recently called by Felix M. Warburg and attended by representatives of various city hospitals, plans were considered for merging the three large Jewish hospitals of the Bronx. The plan calls for the erection of a great central hospital building in place of the three separate institutions. It was proposed that a building should be erected to cost at least $500,000 and to accommodate 300 patients. The plan also includes the establishment of dispensaries in different parts of the Bronx. Resolutions were adopted authorizing the appointment of a committee of those interested in the work to make a survey and to work out definite plans.

Personal.—Dr. Isadore Rosen has been appointed instructor in syphilology in the College of Physicians and Surgeons in the City of New York.——Dr. Louis R. Harris, director of the Bureau of Preventable Diseases, has been appointed successor to Dr. Bertram H. Waters, resigned.——Dr. Chester L. Carlisle, formerly senior assistant physician to the King's Park State Hospital, Long Island, has been appointed and has assumed office as superintendent of the Division of Mental Defects and Delinquency of the State Board of Charities, with office at the capital, Albany.——Dr. William G. Bissell, Buffalo, has been elected vice president of the Federated Alumni Association of the University of Buffalo.——Dr. James L. Gallagher, Buffalo, has been reelected supreme medical examiner of the Ancient Order of Foresters for the Atlantic, central and southern states.

OHIO

Personal.—Dr. Allen W. Freeman, U. S. P. H. S., took office, October 1, as the first commissioner of health of Ohio.——Dr. Joseph W. Lehr, Wooster, suffered severe injuries in a collision between an automobile and the buggy in which he was riding, September 30.——Dr. J. Sumner Teter has been appointed city epidemiologist at Toledo, succeeding Dr. Thomas L. Ramsey, resigned.——Dr. Oscar H. Sellenings has resigned as a member of the Columbus Board of Health.——Dr. DeWitt T. McGriff, Lima, has been appointed coroner of Allen County, succeeding Dr. Virgil H. Hay, resigned to enter the military service.——Dr. Leo S. Talaska has been appointed city physician of Toledo, succeeding Dr. J. Sumner Teter.——Dr. William E. Pricer, Ironton, and family have gone to St. Petersburg, Fla.

PENNSYLVANIA

Philadelphia

Personal.—Dr. Thomas McCrae, professor of medicine in Jefferson Medical College, who has been in charge of a large military hospital in England, has returned home and resumed his practice and teaching in Jefferson College and Hospital.——Dr. J. Clarence Keeler has been made assistant professor of otology in Jefferson Medical College.

Army Tuberculosis Unit.—This city has furnished a tuberculosis unit to the government. Twelve experts on diagnosis and treatment have been ordered to proceed to Camp Dix, Wrightstown, to examine the 47,000 drafted men. The physicians who make up this unit are: Drs. Henry R. M. Landis, Charles M. Montgomery, Joseph P. Walsh, Alexander Heron Davisson, Robert Shelmerdine McCombs, Frank A. Craig, Clarence D. Smith, J. Isadore Kaufman, John J. Robrecht, Clinton Foltz, Elmer H. Funk, all of Philadelphia, and Marcus W. Newcomb, Browns Mills, N. J.

Substitutes for Doctors in War Service.—Drs. William W. Keen, George A. Knowles, James T. Rugh, George D. Fussell and Frederick P. Henry, secretary, 114 South Eighteenth Street, the committee to procure substitutes for physicians ordered in service requests all who are going to the front to notify the secretary of the committee of the names and residences of those who are to take charge of their practice during their absence. In case they have difficulty in procuring substitutes, the committee will be glad to assist them in making such arrangements. The committee would suggest to doctors leaving for the front that they inform their patients who their substitutes are and post on the doors of their offices the names and residences of such substitutes.

WEST VIRGINIA

Personal.—Drs. Robert U. Drinkard, John W. Gilmore, Andrew J. Wilson and Charles M. Truschel, Wheeling, have been selected as members of the visiting staff of the View Point Sanitarium, Wheeling.

Semi-Centennial of Medical Society.—The West Virginia State Medical Association held its fiftieth annual meeting at Fairmont, October 2 to 4, under the presidency of Dr. Joseph E. Rader, Huntington. Berkeley Springs was selected as the next place of meeting, and the following officers were elected: president, Dr. Samuel R. Holroyd, Athens; vice presidents, Drs. Charles O'Grady, Charleston; William J. Judy, Belleville, and Charles W. Waddell, Fairmont; secretary, Dr. J. Howard Anderson, Marytown; treasurer, Dr. Hugh G. Nicholson, Charleston; counsellors, first district, Dr. Henry R. Johnson, Fairmont; second district, Dr. Theodore K. Oates, Morgantown; third district, Dr. Chester R. Ogden, Clarksburg; fourth district, Dr. George D. Jeffers, Parkersburg; fifth district, Dr. James E. McDonald, Logan; sixth district, Dr. Horace L. Goodman, McKendree; delegate to the American Medical Association, Dr. F. LeMoyne Hupp, Wheeling, and editor of the journal of the association, Dr. James R. Bloss, Huntington.

WISCONSIN

Society Moves.—The Milwaukee Medical Society has moved into its new quarters in the Colby-Abbott building, and has transferred its library and reading rooms to the new home. The rooms were formally dedicated, October 7.

Personal.—Dr. Frederick M. Harris has resigned as full-time health commissioner of Fond du Lac, and director of the Fond du Lac Cooperative Laboratory.——Dr. Lewis J. Daniels has been appointed health commissioner of Milwaukee, succeeding Dr. George C. Ruhland, who has entered the United States service.

Hospital Notes.—Through the efforts and generosity of Dr. John G. Meachem, the establishment of a children's hospital in Racine has been made possible. Dr. Meachem has purchased a house south of the maternity home on Wisconsin Street, and has given it to St. Luke's Hospital and the Alice Horlick Hospital for a term of years, free of rent and taxes. The building will accommodate seventeen patients.——Sunny Rest Sanitarium, erected four years ago by Racine County at a cost of $35,000, is found to be in need of immediate repairs which will cost more than $5,000.

State Medical Society Meeting.—The State Medical Society of Wisconsin held its annual meeting in Milwaukee, October 3 to 5, under the presidency of Dr. Hoyt E. Dearholt, Milwaukee. The following officers were elected: president, Dr. Gustave Windesheim, Kenosha; vice presidents, Drs. Oscar Lotz, Milwaukee; Thomas W. Nuzum, Janesville, and Karl W. Doege, Marshfield; secretary, Dr. L. Rock Sleyster, Waupun (reelected); treasurer, Dr. Sidney S. Hale, Ripon (reelected); a delegate to the American Medical Association, Dr. Charles H. Lemon, Milwaukee; alternate, Dr. Wilson Cunningham, Platteville, and counsellor of the ninth district, Dr. Joseph F. Smith, Wausau; Dr. Louis M. Warfield, Milwaukee, was elected president, and Dr. Joseph S. Evans, Madison, secretary of the medical section; Dr. Edward W. Quick, Milwaukee, president, and Dr. Daniel Hopkinson, Milwaukee, secretary of the surgical section, and Dr. Sidney S. Hall, Ripon, president, and Dr. Joseph J. Bellin, Green Bay, secretary of the eye, ear, nose and throat section.

CANADA

Personal.—Major William John O. Malloch, Toronto, who returned to England from Saloniki with the Toronto University Base Hospital, has been appointed surgeon-in-chief of the Ontario Military Hospital, Orpington, England.——Lieut.-Col. Thomas Bedford Richardson, Toronto, who has been medical officer to the British-Canadian War Mission, Chicago, has been recalled to Canada, and has been appointed to the staff of the Canadian Pension Board at Ottawa.——Lieut.-Col. P. Walter H. McKeown, Toronto, overseas for over two years, is temporary O. C., Kitchener Hospital, Brighton, England.——Major Donald McGillivray, Toronto, on three months' leave of absence, has not yet fully recovered his health as to permit him to return to England for hospital duty.——Major William J. Clark, Toronto, of the Ontario Military Hospital, Orpington, England, is home on three months' leave of absence.——Hon. Dr. William J. Roche, Minnedosa, Manitoba, who was a member of the late Borden government, has been appointed head of the Canadian Civil Service Commission, but at the present time is in a hospital, seriously ill.——Capt. Brefney R. O'Reilly, Toronto, will accompany the Canadian and American aviators to Texas for winter training. Dr. O'Reilly is medical officer to the Canadian Flying Corps.

Canadian Military Hospitals Commission.—There are now fifty-seven institutions operated directly by the Canadian Military Hospitals Commission, fourteen others at which definite accommodations are available, apart from the hospitals for the insane, and twenty-three hospitals where men may be sent for active treatment.——The commission has under control sixteen hospital cars for transportation of the men from hospital ships to their inland destination. It is expected from 1,200 to 1,500 soldiers will now be returning every month.——Arrangements have been made recently whereby the Canadian Army Medical Corps contributes to the medical service of the commission. The following are the special classes, including specialists, in the following branches: general practice; tuberculosis; orthopedics; mental diseases; eye, ear and throat diseases; dental; massage; electrical treatment; physical drill, and rheumatic treatment.——The Oakhill Military Convalescent Hospital, St. Catherines, Ont., is specially assigned for rheumatic cases. British Columbia has several; Winnipeg, one.——There are two classes of mental disability. The Ontario Military Hospital at Coburg, Ont., will be retained entirely for shell-shock cases, and arrangements have been made to open at Newmarket, Ont., an institution for the insane.——The commission only has one factory thus far for the manufacture of artificial limbs, that in North Toronto, but in the near future other manufactories will be established in different parts of Canada.

GENERAL

Eye, Nose and Throat Specialists to Meet.—The twenty-second annual meeting of the American Academy of Ophthalmology and Oto-Laryngology will be held in Pittsburgh, October 29 and 30, under the presidency of Dr. William L. Dayton, Lincoln, Neb.

National Housing Conference.—The sixth National Conference on Housing in America was held in Chicago, October 15 to 17, under the auspices of the National Housing Association, in cooperation with the city of Chicago, and the Chicago Civic and Social Service Organization. Among the chief topics for discussion were, "Chicago's Housing Problem," "Industrial Housing," and a symposium on housing famines.

Bequests and Donations.—The following bequests and donations have recently been announced:

Dr. John B. Briggs, Hartford, Conn., one-half the estate of Mrs. James E. Nichols, amounting to nearly half a million dollars.

To establish the Dr. James M. Ferguson Home for worthy poor and homeless white persons of El Paso County, Colo., the estate of Dr. James M. Ferguson, valued at about $20,000.

George F. Geisinger, Memorial Hospital, Danville, Pa., an endowment of $1,000,000, by Mrs. Abigale E. Geisinger.

The Alvarenga Prize.—The College of Physicians of Philadelphia announces that the Alvarenga Prize for 1917 has been awarded to Dr. Wilbur C. Davison, Baltimore, for his essay entitled "The Superiority of Inoculations with Mixed Triple Vaccine (*B. typhosus*, *B. paratyphosus* A and *B. paratyphosus* B). Over Successive Inoculations with the Single Vaccines, as Shown by Agglutinin Curves in Men and Rabbits." The next award of the prize, being the income for one year of the bequest of the late Señor Alvarenga, amounting to about $250, will be made, July 14, 1918, provided an essay deemed by the committee of award to be worthy of the prize shall have been offered. Essays for competition may be on any subject [illegible]ine, but cannot have been published. must [illegible]n, and if written in a language

English, should be accompanied by a translation. They must be received by the secretary, Dr. Francis C. Packard, 19 South Twenty-Second Street, Philadelphia, on or before May 1, 1918. Essays must not be signed, but must be marked with a motto, and accompanied by a sealed envelope having on the outside the motto, and inside the name and address of the author.

Meeting of Clinical Congress of Surgeons.—Special arrangements have been made for the evening sessions of the meeting of the Clinical Congress of Surgeons in Chicago, October 22 to 26. The programs of these sessions will be devoted especially to war subjects. As corrected to date of going to press, it is as follows:

MONDAY, OCTOBER 22, 8:15 P. M., ORCHESTRA HALL

Address by Chairman of Committee on Arrangements ....
.................................A. J. Ochsner, M.D., Chicago
Remarks of Retiring President ....Fred B. Lund, M.D., Boston
Inauguration of President-elect......John G. Clark, M.D., Philadelphia
The General Medical Board of the Council of National Defense
..............................Franklin H. Martin, M.D., Chicago
Presentation of, and remarks by:
  Hon. Josephus Daniels, Secretary of the Navy.
  Surgeon-General William C. Gorgas, U. S. A.
  Surgeon-General William C. Braisted, U. S. N.
  Surgeon-General Rupert Blue, U. S. P. H. S.
  Colonel T. H. Goodwin, Representative of the Director-General, British Army Medical Service.
  Colonel C. Dercle, Representative of Medical Department, French Army.
  Major Charles H. Mayo, M. R. C., President, American Medical Association.
Observations upon the Medical Service of the British Army
..............................Sir Berkeley Moynihan, Leeds, Eng.
The Work of the American Units in France,
..............................George W. Crile, M.D., Cleveland.

TUESDAY, OCTOBER 23, 8 P. M., GOLD ROOM, CONGRESS HOTEL

Symposium: Sanitation and Sepsis—
  The Work of the Army Surgeon..Surg.-Gen. Wm. C. Gorgas, U. S. A.
  The Work of the Navy Surgeon..Surg.-Gen. Wm. C. Braisted, U. S. N.
  In the Training Camps..........Col. E. L. Munson, M. C., U. S. A.
  Military Laboratories .... Col. F. F. Russell, M. C., U. S. A.
Symposium: Antiseptics—Edward Martin, M.D., Philadelphia; H. D. Dakin, M.D., New York; E. H. Dunham, M. D., Philadelphia; Alexis Carrel, M.D., New York; Wm. O'Neill Sherman, M.D., Pittsburgh; W. Estell Lee, M.D., Philadelphia.
Extra Cantonment Zones ....Raymond D. Fosdick, New York
The Control of Venereal Diseases..Wm. F. Snow, M.D., Washington

WEDNESDAY, OCTOBER 24, 8 P. M., GOLD ROOM, CONGRESS HOTEL

Symposium: Military Surgery and the Specialties—
  General Surgery.........Maj. Charles H. Mayo, M. R. C., Rochester
  Reconstruction Surgery ....Maj. Edgar King, M. C., U. S. A.
  Head Surgery.............Maj. Walter R. Parker, M. R. C., Detroit
  Brain Surgery ....Capt. Charles Bagley, Jr., M. R. C., Baltimore
  Ophthalmic Surgery.....Maj. James Bordley, Jr., M. R. C., Baltimore
  Surgery of the Ear, Nose and Throat
  ....C. W. Richardson, M.D., Washington
  Oral Surgery .... Maj. Vilray P. Blair, M. R. C., St. Louis
  Orthopedic Surgery ....Maj. E. G. Brackett, M. R. C., Boston

THURSDAY, OCTOBER 25, 8 P. M., GOLD ROOM, CONGRESS HOTEL

Presidential Address: The Use of Radium in Gynecology
..............................John G. Clark, M.D., Philadelphia
Surgery of the Spinal Cord......Charles H. Frazier, M.D., Philadelphia
  Discussion by Allen B. Kanavel, M.D., Chicago.
Surgery of the Stomach......William J. Mayo, M.D., Rochester, Minn.
  Discussion by A. J. Ochsner, M.D., and L. L. McArthur, M.D., Chicago.

FOREIGN

Red Cross Mission in Italy.—The *Policlinico* states that a mission from the American Red Cross is in Rome to study conditions on the Italian front, in the hospitals, etc. They were received and welcomed by Senator Comte Della Somaglia, president of the Italian Red Cross, the prefect of Rome, and other notables.

New Piñero Hospital at Buenos Aires.—The hospital provided for by the bequest of P. Piñero in 1907 has just been opened. There are to be five pavilions, with a capacity of 625 beds. The bequest stipulated that the hospital must be opened to the public before Sept. 12, 1917, but the war has interfered with obtaining materials from Europe and elsewhere, so that only the outpatient department and emergency station as yet are open to the public. Dr. R. Spurr is the chief medical director of the hospital. It is to be in charge of the Asistencia Publica of Buenos Aires, the central organization of all institutions devoted to the care of the sick poor.

Deaths in the Profession Abroad.—**F. W. Kidd**, professor of obstetrics at the University of Dublin, at one time president of the Irish Medical Association and member of the council of the British Gynecological Society.——**R. Oeri**, Basel, aged 68.——**M. F. Escudero**, prominent surgeon of Buenos Aires, aged 43.——**B. Hernandez**, Madrid, in charge of the antirabies service there.——**A. Jouty**, who succumbed to fulminating septicemia from an accidental infection incurred in his war service of otorhinolaryngology at Lyons. From recent casualty lists, British: **Lieut.-Col. E. H. Openshaw**, presumably in Mesopotamia; **Capt. B. A. Bull, Lieut. D. Anderson, Capt. W. J. Evans, Surgeon H. A. Potter, Col. T. Daly**, assistant director of the medical services, lost in sinking of transport *Arcadian;* **Capt. J. W. S. Wilson, Fleet Surgeon E. C. Ward, Capt. A. S. Taylor, Capt. R. W. Shegog, Captain Neligan, Lieut. A. G. Dunn, Capt. B. Woodhouse, Capt. N. G. Chavasse**, awarded the Victoria Cross. In Italy: **Lieut. F. Pittaluga, Capt. C. Zucchetti, Lieut. A. Buonomo, Lieut.-Col. D. Sonnino, Lieut. E. de G. di Santa Severina.** In France: **Aide-Major P. Reynaud, A. J. Giordani, Lieutenant Duguit, Captain Morin**, chief of the hospital at Vadelaincourt, shelled by aeroplanes, one bomb killing him and the soldier on whom he was operating.

PARIS LETTER

Paris, Sept. 6, 1917.

The Visit of the Uruguay Physicians

A party of medical men from Uruguay are touring the southwestern part of France at present. They started in the Arcachon region, investigating its climatotherapeutic resources. The party was entertained by the Arcachon Medical Society which took them to visit the summer and winter resorts and the headquarters of the society, its collections and its laboratory.

Physicians Victims of Their Devotion

The death of Dr. Leon Bonnet, aged 58, has been reported from Puy-en-Velay. He was one of the first medical men to study the roentgen rays, and he has just paid with his life for his devotion to science and his patients. He contracted the disease to which he succumbed while working with the roentgen rays.

Radiologic science has also to record another victim, Dr. Vaillant, chief of the service of radiology at the Lariboisière hospital. He has just had to have his left forearm amputated because it had become gangrenous under the use of the roentgen rays. During the twenty years that he has been working with these rays he has had a number of accidents. First, several years ago, one and then two fingers of the left hand had to be amputated, and then one finger of the right hand. In spite of the precautions taken, the evil grew constantly worse and the forearm has had to be removed.

The American Red Cross Canteens for Soldiers

The war council of the American Red Cross has decided to expend $700,000 in the organization of canteens and lounging places for the use of French and American soldiers. They are to be close to the front and in the railway stations, and are to be equipped with writing materials, games, facilities for bathing and arrangements for the sale at cost price of small useful articles and comfort supplies.

Physicians and the Coal Card

I have already mentioned in a previous letter the institution of the coal card. The organized physicians of the Seine department, the Syndicat, has appealed to the highest local authorities, calling their attention to the situation as it affects physicians. Their communication says: "As the coal card is to be inaugurated, September 1, it is necessary that the situation as it affects the medical corps must be cleared up before that date. During the discussions preceding the inauguration of the coal card, it was heard that the liberal professions would be granted special privileges, as lawyers and physicians are obliged to have a room in which they receive their clients and a waiting room for them. It is estimated that these rooms would have to be heated on an average four hours a day, that is, omitting Sundays, 4 × 2 × 27 = 216 hours of heating per month, which would have to be added to the amount apportioned for each individual coal card. The medical corps of Paris, not being under the jurisdiction of the Chamber of Commerce, is compelled to apply to the highest local authority, the prefect of the department, to obtain that to which it is entitled. We are convinced, besides, that it is only necessary to call your attention to the needs of the profession to have them recognized and satisfaction granted."

The War

THE MEDICAL SERVICE IN THE ARMY IN MACEDONIA

M. Justin Godart, undersecretary of state for the military medical department, on his return from his recent visit to the eastern firing line, sent the following letter to the commander in chief of the medical forces of the armée d'Orient:

"On my visit to the medical and surgical quarters of the armée d'Orient I saw at the front and even in Saloniki the results of the work and devotion of all the personnel in your command. The difficulties to be overcome, depending on the question of transportation and climatic conditions, were of the most serious kind, and were further aggravated by the colonial character of this war. But thanks to the close collaboration between the military command and your department, it has been possible to effect day by day material improvement both from the practical and from the scientific standpoints.

"Please convey my congratulations and my thanks to every stretcher bearer, nurse (men and women), physician, pharmacist, and administrative official. Far from their native land, they have served their country well, devoting themselves entirely to solicitude and care for the soldiers for whom we can never do too much. The Republic may justly be proud of all of them as well as of those doing the actual fighting."

THE SHELL SHOCK CASES

The report on the mental confusion cases among the men on active service was prepared in collaboration by Drs. Juquelier, Capgras and Bonhomme, and in an important summary of the subject, impossible to do justice to here, they called attention in particular to the following questions: (1) from the point of view of the etiology, the existence of cases of a purely commotional or emotional origin, without the influence of infection or intoxication; (2) the greater gravity of the prognosis in the commotional cases and their complication by sequelae, and (3) the importance of the sequelae, which may include psychoses and secondary psychoneuroses, among which are dementia praecox, masked epilepsy, the syndrome of hyperemotionalism and recurring conditions of oneirism, that is, dreamlike hallucinations while awake, etc.

The discussion bore mainly on points of detail. Dr. Delmas insisted on certain peculiarities of the war confusional state: its equal frequency in the wounded and the nonwounded; the importance among other sequelae of early dementia and the syndrome of hyperemotionalism, and the constant existence of a period of latency at the beginning of the "commotional confusion." Dr. Marie warned against the too early return to duty of the men thus afflicted; Dr. Meige, against errors of diagnosis between confusion and aphasia. Dr. Laignel-Lavastine emphasized the fact that emotional and concussional confusion are produced by a physiologic mechanism, the emotion generating the confusional state through the intermediation of the secretory disturbances which it induces.

THE DISTURBANCE IN THE PUPIL REACTIONS AFTER SHELL SHOCK

At a recent session of the Académie de médecine, Dr. G. Guillain, agrégé professor at the Paris Faculté de médecine and hospital physician, and Dr. J. A. Barré called attention to the changes in the pupil reactions which they had noted in twenty-six cases of concussion from explosion of a large shell without external wound. Sometimes, at first, the pupils are abnormally dilated, and show no reaction to light or accommodation. Usually the mydriasis is of different degrees in the two eyes; sometimes on one side only, sometimes on both there is no response to light; sometimes there is an actual Argyll Robertson sign; in other cases there may be a paradoxical reaction to light. In some of the cases of shell shock the pupils may be merely unevenly dilated without modification of the motor reaction to light or to accommodation. These disturbances in the milder cases of shell shock do not cause much trouble. They are transient, as a rule, lasting from three to fifteen or twenty days and sometimes longer, but they gradually improve and finally disappear completely. They remarked that it is somewhat difficult to understand the pathogenesis of these pupil disturbances. In six of the men, they coexisted with xanthochromia in the cerebrospinal fluid and slight meningeal hemorrhage, but in the majority of cases there was complete absence of any sign of meningeal hemorrhage. When there is a slight meningeal hemorrhage, it might be assumed that the cerebrospinal fluid had been rendered toxic by the products of hemolysis, and that this toxic influence had been felt by the fibers of the nerve roots, either on the centripetal or on the centrifugal path of the reflex, or else the small bacillary clots might have injured the fibers by compression. It seems also as if in many cases there may have been some direct peripheral source for the pupil anomalies, either from actual concussion of the retina or from some local concussion of the ciliary muscle or nerves under the influence of the explosion of the shell. Whatever their pathogenesis, these pupil modifications should be made known. They are by no means exceptional and their causal relations with the concussion seem to be evident.

[The French term *concussion* is used, by some strange twist of the language, exclusively to mean "graft," especially extortion by a public official. Consequently it is never applied, as in English, to denote the condition resulting from a violent shock. They use the term *commotion*, and men suffering from shell shock are called *les commotionés*.

LONDON LETTER

London, Sept. 18, 1917.

The War

AMERICAN PHYSICIANS IN ENGLISH HOSPITALS

In consequence of the shortage of physicians in this country, the War Office is substituting American Army surgeons for civilian physicians that are employed for part time in military hospitals. There are several reasons for this. As stated in a previous letter to The Journal, the Central Medical War Committee has informed the government that no more physicians can be taken from civil practice. The release of part-time men from the military hospitals will help to ease the strain in civil practice and enable more men of military age to be called up. Moreover, it is held that part-time men, because of the exigencies of their private work, are not a good bargain for the state, and it is always preferable to employ full-time men. Finally, the urgent need of the present time is for orthopedic surgeons, and America is well able to supply these.

PARATYPHOID FEVER AMONG BRITISH PRISONERS OF WAR

A serious outbreak of paratyphoid has occurred among British officer prisoners of war in the hands of the Turks at Yozgad, in Turkey in Asia. The mortality among the rank and file of British and Indian prisoners captured in Kut has been very heavy, amounting almost to 70 per cent. of the men captured. Among the officer prisoners, the mortality has been slight, and the latter are being treated as well as the circumstances of their captors allow.

TETANUS IN MILITARY HOSPITALS

The War Office Committee for the Study of Tetanus has published an analysis, compiled by Sir David Bruce, of the cases of tetanus that have occurred in military hospitals which is important, as it shows the effects of treatment. During four successive periods analyzed, the rate of mortality has steadily gone down. In the first period the mortality was 57.7 per cent.; in the second, 49.2; in the third, 36.5. In the fourth period there is a series of 100 cases of which sixty-nine patients recovered, a mortality of 31 per cent. The ratio of cases of tetanus to the number of wounded soldiers treated in home military hospitals was, roughly, six times as high in September, 1914, as it was two months later; and it remained at or about the lower level until the end of 1916. This fall in ratio was undoubtedly due to a great extent to the introduction of prophylactic injections of antitetanic serum, which took place about the middle of October, 1914.

The cases in the last period show once again that the shorter the incubation period the greater the mortality rate, and vice versa. There were only twelve cases with a short incubation period (that is, up to ten days), and sixty cases with an incubation period of more than twenty-two days; the shortest incubation period was seven days, and the longest 190. Since the beginning of the war there has been a diminution in the number of cases with short incubation periods, and a corresponding increase in the number of cases with long incubation periods. This is a measure of the action of the prophylactic inoculation of antitoxin. Sir David Bruce points out that it is sometimes by no means easy to decide whether a case is one of localized or generalized tetanus. He defines general tetanus as that in which spasticity or rigidity occurs in muscles distant from the site of the wound, trismus being the most common initial symptom. In local tetanus the spasticity or rigidity is confined to the muscles in the neighborhood of the wound. He looks on local tetanus as a much modified variety of the original disease, or even as a new type due to the action of the prophylactic injection. In general tetanus the toxin molecules may be pictured as gaining entrance to the circulation and so reaching all parts of the nervous system. In the last

100 cases, sixty-one were general and twenty-eight local; in the remainder there was doubt. In the sixty-one cases of generalized disease there were twenty-one deaths, a mortality of 34.4 per cent. All the patients with localized tetanus recovered. Trismus was recorded in fifty-four of the generalized cases, opisthotonos in seventeen. With regard to operative interference, the tetanus committee advises that when operations are performed at the site of wounds, even if they are healed, a prophylactic injection of serum should always be given; further, they consider it probably safer to abstain from surgical interference with the wound until the ordinary treatment for tetanus has been carried out, unless there are other and imperative reasons for immediate operation.

When the symptoms of the tetanus have subsided, and the tissues are flooded with antitoxin, then the wound can be opened up and searched for foreign bodies or hidden collections of pus and tetanus bacilli. The analysis of the cases furnishes no evidence either for or against the intrathecal route. In the first year of the war the figures seemed to show that this route was better than others.

ORTHOPEDIC HOSPITALS AND CURATIVE WORKSHOPS IN ENGLAND

Considerable attention is being directed in this country, as in France, to the development of military orthopedic hospitals and curative workshops, which are being established in various parts of the country. In London there is at Shepherd's Bush a military orthopedic hospital with 1,200 beds. Since this hospital was opened in March, 1916, 1,270 men have been discharged, of whom 390 were permanently unfit, 325 were returned to duty, 507 were sent to command depots, and 515 to employments. There are departments for electrotherapeutics, massage and hydrotherapeutics. Curative workshops are being completed which will provide places for over 200 men. The work done includes engineering, electrical work, metal grinding and polishing, felting, tailoring, fancy leather work, carpentering, photography, art iron work, oxyacetylene welding, French polishing, painting and sign writing, metal engraving, coopering, motorcar overhauling, surgical bootmaking and repairing, and splint making. In all of these a high degree of efficiency is attained by the men.

INDIGENOUS MALARIA IN ENGLAND

Indigenous malaria has not been known in England since the early part of last century, when it was prevalent in certain marshy districts and known as marsh fever or ague. However, since the war several cases have been reported, especially among troops. The return of large numbers of men who have contracted malaria in the eastern campaigns means the presence of persons whose blood contains malarial parasites, and as anopheline mosquitoes are also present, the possibility of contagion exists. A case was recently recorded in the *Lancet* of malaria due to the benign tertian parasite in a soldier, aged 20, who had never been outside the British Isles. He was well until he reached a depot to which men who had returned from Saloniki with malaria were drafted. Under the advice of Sir Ronald Ross, the War Office has taken measures to prevent such infection. Patients with malaria will be segregated in special depots and hospitals, and quinin continually administered to soldiers that are likely to remain carriers of malaria. Health officers have been supplied with a memorandum on the subject to be circulated among physicians in order that they may report any cases of fever shown or suspected to be due to malaria, and that inquiries may be made as to the possible source of infection.

Low Birth Rate in Ireland

The fifty-third annual report of the Registrar-General for Ireland, giving statistics for 1916, shows that 22,245 marriages were registered during the year, equivalent to a rate of 5.13 per thousand of the estimated population. This rate is 0.44 per thousand below the rate for 1915, and 0.11 under the average for the ten years 1906-1915. The births registered numbered 91,437, being 21.1 per thousand, which is 1.9 below the average for the ten years 1906-1916. There were 71,391 deaths, equivalent to 16.5 per thousand of the population estimated to the middle of the year. The death rate is 1.1 below that for 1915, and 0.5 below the average rate for the ten years 1906-1915. The number of deaths from all forms of tuberculous disease was 9,323, equivalent to 2.15 per thousand. With the exceptions of 1912, 1913 and 1914, the rate for 1916 was the lowest recorded. The rate for tuberculous diseases in England and Wales during the same period was 1.35.

Marriages

LIEUT. LAVERNE B. SPAKE, M. R. C., U. S. Army, Kansas City, Kan., to Miss Ella Haines Vanneman of El Paso, Texas, June 30.

LIEUT. FRANCIS VINCENT GOWEN, M. R. C., U. S. Army, to Miss Marguerite J. Horan, both of Philadelphia, October 6.

LIEUT. MICHAEL JOSEPH MCCARTHY, M. R. C., U. S. Army, to Miss Blanche Reilly, both of Pottsville, Pa., October 3.

LIEUT. PHILIP MCQUESTEN, M. R. C., U. S. Army, Boston, to Miss Elizabeth Swart of Concord, N. H., September 27.

WILLIAM M. O'SHEA, M.D., Webster, Mass., to Miss Blanche E. M. White of Worcester, Mass., September 25.

LIEUT. LEON SOLIS-COHEN, M. R. C., U. S. Army, to Miss Marion Mansbach, both of Philadelphia, September 30.

SAMUEL RAYMOND FAIRCHILD, M.D., Pennsgrove, N. J., to Miss Ruth Lanahan of Louisville, Ky., September 15.

GAYLORD MCE. ANDREWS, M.D., Stella, Neb., to Miss Elizabeth Bookwalter of Kansas City, Mo., October 2.

CHARLES DIMM DIETTERICH, M.D., Parkerford, Pa., to Miss Aneeda Hill of Collegeville, Pa., September 26.

HENRY ASLOP RILEY, M.D., to Miss Mary Chaplin Edgar, both of New York City, October 6.

GEORGE H. CRAFT, M.D., to Miss Flo J. Redfield, both of Pittsburgh, at Erie, Pa., October 1.

OTIS GUY BACON, M.D., to Miss Bonnie Caley, both of Davidson, Okla., September 21.

EDWIN J. OXFORD, M.D., to Miss Gladys Baker, both of Chambers, Neb., September 30.

MATT R. ROOT, M.D., to Miss Henrietta Ziegle, both of Denver, August 28.

Deaths

Moses Greeley Parker, M.D., Lowell, Mass.; Harvard Medical School, 1864; aged 74; a Fellow of the American Medical Association; consulting oculist to St. John's Hospital, Lowell; assistant surgeon, Second United States Cavalry, during the Civil War; once president of the Middlesex North District Medical Society, and of the Lowell Medical Journal Society; president-general of the National Society of the Sons of the American Revolution, in 1911 and 1912; died at his home, October 2.

Eli Leinbach Klopp, M.D., Philadelphia; Jefferson Medical College, 1889; aged 61; a Fellow of the American Medical Association, and a member of the American Academy of Ophthalmology and Oto-Laryngology; for many years assistant professor of otology in his alma mater; aural surgeon and chief of the nose and throat clinic of the Jefferson Hospital; for ten years a pharmacist; died at his home, Oak Lane, Philadelphia, September 29, from disease of the kidneys.

Allen DeVilbiss, M.D., Toledo, Ohio; Miami Medical College, 1868; aged 75; a Fellow of the American Medical Association; a member of the Mississippi Valley Medical Association, and American Academy of Ophthalmology and Oto-Laryngology, and a trustee of the Lucas County Academy of Medicine; president of the DeVilbiss Manufacturing Company; a veteran of the Civil War; died at his home, October 1, from cerebral hemorrhage.

Thomas P. Russell, M.D., Oshkosh, Wis.; Vermont Medical College, Woodstock, 1852; aged 90; a Fellow of the American Medical Association; said to have been the oldest practitioner of Wisconsin; assistant surgeon of the Second Wisconsin Volunteer Infantry, and later assistant surgeon of the First Wisconsin Volunteer Cavalry, during the Civil War; died at his home, October 5.

John Francis Wouters, M.D., New York City; College of Physicians and Surgeons of the City of New York, 1888; aged 65; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of New York; for several years a member of the attending orthopedic staff of the French Hospital; died at his home, September 30, from heart disease.

Benjamin Franklin Spangler, M.D., York, Pa.; Jefferson Medical College, 1868; aged 73; a member of the Medical Society of the State of Pennsylvania; one of the organizers and for many years a director of the Drovers and Mechanics' National Bank, York; a veteran of the Civil War; died at his home, September 29, from disease of the stomach.

Harold Havelock Kynett, M.D., Philadelphia; University of Pennsylvania, Philadelphia, 1886; aged 55; formerly a member of the Medical Society of the State of Pennsylvania; a gynecologist; for several years president of the Philadelphia Choral Society; who had been crippled for many years by reason of an accident; died at his home, October 1.

Brent L. Barker, M.D., Monticello, Ill.; Louisville (Ky.) Medical College, 1897; aged 46; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; once secretary of the Piatt County Medical Society; local surgeon of the Illinois Central Railroad; died at his home, September 29.

Lieut. John Henry Andres, Jr., M. R. C., U. S. Army, Duluth, Minn.; University of Pennsylvania, Philadelphia, 1911; on duty with a medical detachment of field artillery at El Paso, Texas; was found dead in his room at a hotel in El Paso, October 5; death being due to an incised wound of the throat.

Carl Oscar Bernhardi, M.D., Rock Island, Ill.; Rush Medical College, 1902; aged 37; a Fellow of the American Medical Association, and a well known surgeon of Rock Island; who had been suffering from heart disease for six months; died in the Presbyterian Hospital, Chicago, October 8, from lobar pneumonia.

Harlan Page Ustick, M.D., Boise, Idaho, Hahnemann Medical College, Philadelphia, 1883; aged 68; founder of the town of Ustick, Idaho, and for several years president of the Ustick Bank; died suddenly, September 26, from heart disease at the Cinnabar Mine, near Yellow Pine, on Fern Creek, Idaho.

John W. Hawkins, M.D., Glasgow, Mo.; Jefferson Medical College, 1861; aged 79; a member of the Missouri State Medical Association, and president of the Howard County Medical Association in 1915; died at his home, August 5, from malignant disease of the rectum.

Jessie B. Pierce Garwood, M.D., Princeton, Ill.; State University of Iowa, Iowa City, 1888; aged 59; formerly a Fellow of the American Medical Association; a member of the Illinois State Medical Society; died at her home, September 12, from diabetes.

Loran W. Jordan, M.D., Wabash, Ind.; Hahnemann Medical College, Chicago, 1883; College of Physicians and Surgeons, Chicago, 1884; aged 64; formerly a member of the Indiana State Medical Association; died at his home, October 2.

Thomas McCrary Hughes, M.D., Russellville, Ala.; Chattanooga (Tenn.) Medical College, 1900; aged 41; a member of the Medical Association of the State of Alabama; was shot and killed by a companion, October 4, while on a hunting trip.

Joseph A. Hansler, M.D., St. Joseph, Mo.; Ensworth Medical College, St. Joseph, 1908; aged 40; a member of the Missouri State Medical Association; who went to San Antonio recently on account of his health; died at that city, October 4.

Fred Vandegraff Turk, M.D., Stilesboro, Ga.; Atlanta (Ga.) Medical College, 1892; aged 48; formerly a member of the Medical Association of Georgia; died at his home, September 5.

Emma Mehlmann, M.D., Oakland, Calif.; University of California, San Francisco, 1917; aged 33; died at the home of her sister, in Oakland, September 31, from leukemia.

Henry A. Litzenberger, M.D., Walnutport, Pa.; Medico-Chirurgical College of Philadelphia, 1897; aged 44; died at his home, about September 23, from heart disease.

Harry Vernon Weaver, M.D., New Bedford, Mass.; Boston University, 1893; aged 47; a Fellow of the American Medical Association; died at his home, September 21, from peritonitis.

Nicholos Soteriades, M.D., Waterloo, Ill.; University of Munich, Bavaria, 1876; aged 70; died at his home, September 10, from myocarditis.

James Heacock, M.D., Parsons, Kan.; Homeopathic Medical College of Missouri, St. Louis, 1872; died at his home, about September 24.

Charles E. Whitham, M.D., Lawrence, Kan.; Eclectic Medical Institute, Cincinnati, 1859; aged 87; died at his home, September 25.

Turner Eugene Balsley, M.D., Reidsville, N. C.; New York University, New York City, 1879; died at his home, September 1.

R. M. Hargett, M.D., Versailles, Mo.; St. Louis Medical College, 1872; died at his home, September 23.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

ALCRESTA IPECAC

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication.

W. A. Puckner, Secretary.

In 1915 Alcresta Ipecac Tablets (Eli Lilly and Co.) were admitted to New and Nonofficial Remedies as a preparation of ipecac that is insoluble in the stomach but soluble in the intestines. It was supposed that this property would permit the administration of ipecac without the accompanying nausea and vomiting, and that this would be of especial advantage when using the drug in amebic dysentery. The systemic effects, of course, would be those of ipecac.

More recently, the manufacturers of Alcresta Ipecac have been advising its use in conditions which were not contemplated by the Council when the preparation was accepted for New and Nonofficial Remedies. They now claim that ipecac alkaloids have been shown to be useful in the treatment of typhoid fever, flatulence, diarrhea and constipation and that Alcresta Ipecac has these properties. Such a statement is misleading. While it is true that at one time ipecac was used promiscuously against "flatulence, diarrhea and constipation" there never has been and is not now any scientific evidence of its efficiency in such conditions except, of course, in diarrhea of the amebic type. As to the alleged usefulness of ipecac in typhoid fever: This has not even the sanction of tradition and the claim certainly should not be accepted until there is strong evidence to support it.

The advertising matter on Alcresta Ipecac also contained statements to the effect that ipecac alkaloids have a demonstrated usefulness in pyorrhea. Such an unequivocal statement is unwarranted. In spite of the enthusiastic advocacy, in the past, of ipecac alkaloids as a specific in pyorrhea alveolaris the preponderance of scientific evidence indicates that ipecac is of questionable value in this condition. Neither is there any substantial evidence to warrant the claim that ipecac alkaloids, when absorbed through the intestines, are demonstrably useful in amebic infections of the tonsils.

The reputation of the best drugs, whether unofficial or official, is bound to suffer if extravagant claims for them are permitted to go unchallenged. The referee of the Council, therefore, believed it necessary to call the attention of the manufacturers of Alcresta Ipecac Tablets to the statements made for the product and suggested that they submit evidence to substantiate the claims. This the manufacturers have refused to do. Their attitude in the matter, as well as their attitude toward the Council's work is expressed in the following letter:

> "Responding to your letter of March 10th, we beg to suggest that literature covering the different matters at issue are readily available to your referee, and all statements emanating from us are made advisedly.
>
> "If you cannot satisfy yourselves that this preparation is a scientific product, ethically advertised, and a desirable advance in therapeutics, you can only delete it from your next issue of New and Nonofficial Remedies."

It is to be regretted that Eli Lilly and Co. refuse either to withdraw or modify their claims or to substantiate these claims by scientific evidence. The statements as they stand are exaggerated, misleading and harmful. As such they conflict with Rule 6 of the Council and necessitate the omission of Alcresta Ipecac from New and Nonofficial Remedies. The referee recommended the adoption and publication of this report.

HEPATICO TABLETS

Report of the Council on Pharmacy and Chemistry

The Council has adopted the following report and authorized its publication.

W. A. Puckner, Secretary.

"Hepatico Tablets" (David Laboratories, Inc., Brooklyn) are sold under such claims as:

> "Hepatico Tablets directly stimulates the liver cells, producing an increased flow of bile rich in cholates, a solvent of cholestrin [*Sic!*] and a biliary antiseptic for Hepatic Insufficiency, Intestinal Putrefaction, Habitual Constipation and Gall Stones."
>
> "Hepatico Tablets contain a combination of bile salts, pepsin, pancreatin, ext. nux vomica and cascara." [In a formula given in the same circular cascara is replaced by the nondescriptive term "*cascarin*"].
>
> "These tablets are now being extensively used, with most excellent results, in intestinal putrefaction, or autointoxication *conditions, as an* intestinal antiseptic."
>
> "The increased amount of bile, which contains an excess of cholates, flowing continuously through the intestines, prevents abnormal fermentative and putrefactive processes in the bowels."

Comparing the alleged composition of, and therapeutic claims for, "Hepatico Tablets" with those made for "Veracolate" (The Journal, April 24, 1915, p. 1440) many points of similarity are seen. Veracolate was claimed to contain sodium glycocholate and sodium taurocholate with cascara sagrada and phenolphthalein and the mixture was also offered in combination with pepsin and pancreatin. Hepatico Tablets are said to contain sodium glycocholate and sodium taurocholate, cascara sagrada, pepsin and pancreatin.

Both are said to stimulate bile activity and to be disinfectants of the intestinal tract. The general similarity of the claims made for these two preparations may be seen by a comparison of two sentences taken from the advertising matter:

"The action of Veracolate is to *bring* about a profuse flow of healthy bile which prevents bile stasis. As the flow of bile is stimulated so antiseptic action ensues, calculi softened and the concretion and mucous eliminated."	"Hepatico Tablets bring about the secretion of healthy bile, which prevents *bile-stasis as the flow of* bile is stimulated, so antiseptic action ensues, calculi softened, and concretions and mucous eliminated."

A comparison with the claim made for Taurocol (The Journal, April 24, 1915, p. 1441) shows a similar resemblance:

TAUROCOL CIRCULAR	HEPATICO CIRCULAR
". . . Directly stimulates the liver cells, producing an abundant flow of bile rich in cholates, solvent of cholesterin and a biliary antiseptic."	"Hepatico Tablets directly stimulates the liver cells, producing an increased flow of bile rich in cholates, a solvent of cholesterin and *a biliary antiseptic* . . ."

It thus appears that not only is the composition of Hepatico Tablets essentially similar to Veracolate and Taurocol, but its promoters adopt virtually the same therapeutic nonsense used to exploit these competing preparations. There is no evidence that any of the constituents of Hepatico Tablets, or the combination as a whole has any such therapeutic merit as would warrant the claims made.

The Council declared Hepatico Tablets in conflict with Rules 6, 8 and 10 (unwarranted therapeutic claims, objectionable name and irrational combination of substances).

SOME MISBRANDED NOSTRUMS*

Sherman's Compound Prickly Ash Bitters.—The Prickly Ash Bitters Co. of St. Louis, Mo., were the sole proprietors of "Dr. B. F. Sherman's Compound Prickly Ash Bitters," which the government declared misbranded. The product, which contained 20 per cent. alcohol, was recommended in wineglassful doses three times a day or less but was declared to be "not an intoxicating beverage!" The government chemists reported that in addition to the alcohol, buchu was indicated and emodin present, but alkaloids were absent. It was sold as an effective remedy for Bright's disease, dropsy, diabetes, inflammation of the bladder, gallstones, leukorrhea, irregular periods, incontinence, retention and suppression of urine, for malignant diseases of the kidney and for various other conditions equally serious. The claims were declared recklessly and wantonly false and fraudulent. The company pleaded guilty and was fined $10 and costs.—[*Notice of Judgment No. 4455.*]

"Thorn's Copaiba and Sarsaparilla" and "Tarrant's Cubebs and Copaiba."—The Tarrant Co., New York City, shipped in interstate commerce quantities of "Thorn's Compound Extract of Copaiba and Sarsparilla" and "Tarrant's Compound Extract of Cubebs and Copaiba" both of which were declared misbranded under the Food and Drugs Act. Federal chemists reported that the former was essentially a mixture of copaiba and sarsaparilla extract. It was sold as a certain remedy for gonorrhea and gleet and as a remedy for pyelitis, whites, incipient stricture, affections of the kidneys and gravel. These claims were declared false and fraudulent. "Tarrant's Compound Extract" according to the federal chemists consisted essentially of a mixture of copaiba and cubeb extract. It was sold under claims very similar to those made for the first-named preparation, claims which also were declared false and fraudulent. The company pleaded guilty and was fined $25.—[*Notice of Judgment No. 4473.*]

V. I. G.—The Van Vleet-Mansfield Drug Co. of Memphis, Tenn., marketed "V. I. G.," which contained morphin. The government chemists analyzed it and reported that it was "an aqueous solution of glycerin, morphin, berberin, hydrastin and salicylic acid." It was sold under the claim that it was a "cure" for gonorrhea, gleet and leukorrhea and would prevent contagion when used immediately after connection. These claims were naturally declared recklessly and wantonly false and fraudulent. The company pleaded guilty and was fined $25 and costs.—[*Notice of Judgment No. 4423.*]

Correspondence

"THE OBJECTIONS TO RAW EGGS IN THE DIET"

To the Editor:—Your editorial of Sept. 22, 1917, p. 1005, on this subject, calling favorable attention to Bateman's article on the raw egg in the *American Journal of the Medical Sciences,* June, 1917, needs a preliminary reply. Were it not for the stamp of authority of the Sheffield Physiological Laboratory and the consequent serious results that its publication has already caused and likely will further cause, Bateman's flimsy, illogical, unscientific array of semifacts would not be entitled to notice. His conclusion is based on the narrow view that because of the loss of 15 per cent. of available albumin (which is not lost in feeding boiled egg white) the physician should discard the use of the raw egg as "illogical and inadvisable," and that "no advantage accrues." He cites out of but twelve persons observed (?) only one, a child 3 years old, who had diarrhea during the three days that one-half raw white of egg was given daily. Its effect on dogs of vomiting and purging were not reproduced on human subjects by Bateman. Bateman has ignored our later physiologic concept that the uncooked egg must have, besides its caloric value, also a value due specifically to its organized structures for bone, nerve, tissue and blood making, for its pulmonary, digestive, excretory and reproductive systems, for its ductless and other glandular structures, its enzymes, proenzymes, activating and interactivating, constructive and defensive mechanism, and for many potential qualities that are destroyed in cooked eggs. Bateman, without discussing these inherent qualities, would have us throw them away for the sake of saving a probable loss of 15 per cent. Even if the loss were 90 per cent., the raw egg would still in critical cases be worth many times the mere nutritional loss. Also other proteins can be added, and in many ways we can (Bateman admits as much) prevent the loss; but we have nothing in nutrition that can supply the perfect pabulum of the raw egg for the sick who may be especially deficient in these vital selective elements. Lest repeated favorable comment on Bateman's views by medical journals, by public health writers and by the lay press in their desire to publish the latest apparently authentic knowledge might lay the foundation for irreparable harm, I give this early warning until a more complete refutation of Bateman's position which I hope soon will be ready for publication. Nathan Rosewater, M.D., Cleveland.

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* This material, with much additional, appears in the new edition of the pamphlet "Convictions," price fifteen cents.

[Comment.—Our correspondent has not offered a refutation of the scientific observations on which Bateman's conclusions are based. He has not denied that egg white is digested less readily in the raw form than when it is heated to the "coddling" stage at 70 C. (158 F.); nor has he denied that the use of a large number of raw eggs may be attended with putrefactive changes in the bowel. So far as its gross nutritive properties are concerned, the egg can still supply them after it has been cooked. When our correspondent defends the *liberal* use of raw eggs—if that is what he intends to do—by reference to "vital selective elements" and a great diversity of "potential equalities" of undemonstrated potency, he appears to us to enter the domain of vague hypothesis which we are less able to follow than the alleged "flimsy semifacts" referred to in our editorial. What evidence there is for the existence, in the egg, of "organized structures for bone," etc., for "activating and interactivating constructive mechanisms," etc., we are unable to learn. It is true that enzymes are destroyed by heat; but the day for calling on the enzymes of raw food to sustain subtle virtues in them is passing. It is doubtless true that thousands of raw eggs have been fed without obvious untoward effects to patients; likewise dozens of quarts of raw chestnuts have been eaten without serious consequences. These observed facts by themselves do not constitute a brief for either of the raw foods mentioned.

That well known writers at the present time are by no means agreed with the attitude of our correspondent is further shown by the following quotation from the recent little manual "The Physiology of Food and Economy in Diet" by Dr. W. M. Bayliss, professor of general physiology in University College, London, a physiologist of international repute, who writes: "There are one or two erroneous impressions as to the value of some particular foods that need correction. The first of these is that raw eggs are more easily digested than cooked ones. The contrary has been shown by careful experiments to be the case. Of course, if the white is boiled hard, it must be finely divided by chewing, otherwise the gastric juice can only attack it slowly from the outside. Probably the best form is that of custard. The reason why raw egg-white is difficult of digestion is that it contains something, in small amount, which has a powerful retarding or inhibiting action on the digestive enzymes. This is destroyed by heat."—Ed.]

"LARREY, THE ORIGINATOR OF THE RAPID EVACUATION OF THE WOUNDED"

To the Editor:—Anent the interesting historical account of Larrey, the famous surgeon and patriot, by Dr. King of New Orleans, published in The Journal, September 29, and your editorial eulogizing the same surgeon, I would like to quote the following from "La Campagne de Russie, Mémoires du Général Comte de Ségur, Aide-de-Camp de Napoléon," an eye witness and participant in the ill-fated invasion of and retreat from Russia. "In the furious engagement at Borodine, 20,000 wounded were picked up and carried about two leagues to the rear to the great abbey of Kolotshoc." Then the historian continues:

> "Le chirurgien en chef Larrey venait de prendre des aides dans tous les régiments. Les ambulances avaient rejoint; mais tout fut insuffisant. Il s'est plaint depuis, dans une relation imprimée, qu'aucune troupe ne liu eut été laissée pour requérir les choses de première nécessité dans les villages environnants."

"The chief surgeon, Larrey, had just gone for assistants from the regiments. The ambulances had rejoined, but were entirely insufficient. It has since been complained, in a printed account, that no soldiers had been left him for securing necessary things from the surrounding villages."

Larrey was probably the busiest surgeon that history has ever witnessed.

H. P. Ashe, M.D., Pittsburgh.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

"TREATMENT OF ANTHRAX WITH NORMAL SERUM"

To the Editor:—Since the publication of the abstracts of R. Kraus' article on the treatment of human anthrax with normal inactivated beef serum intravenously, I have been looking for rapid corroboration of this apparently important work. In The Journal, Sept. 15, 1917, p. 949, appears the abstract of an article by Lignières which is anything but corroborative of the beef serum treatment. Your editorial comment ("The Treatment of Anthrax with Normal Serum," The Journal, Sept. 29, 1917, p. 1085) ignores this objection and speaks of the treatment as resting on indisputable evidence.

Will you please state if Lignières has retreated from his position, and if Kraus' statements have been corroborated by other workers?

J. Seilin, M.D., Chicago.

Answer.—We wish first to call the attention of our correspondent particularly to the fact that the beef serum used by Kraus was heated before injection, as stated in our editorial. Kraus' observations are based on definite experimental evidence, and his conclusions as to the clinical value of the treatment, in view of his high reputation as an investigator, seem worthy of all consideration. With regard to Lignières' criticisms, these seem to be founded largely on analogy and not on direct observational or experimental contradiction of Kraus' work. It is, of course, true that confirmation from other sources of the success obtained by Kraus in treatment of human anthrax with heated normal beef serum should be obtained before the method is generally advocated and introduced. We are not aware of any evidence that directly controverts or confirms Kraus' investigations.

INCOMPATIBILITY OF QUININ WITH ASPIRIN—SODIUM BICARBONATE AND ACETANILID

To the Editor:—1. Will you please tell me why capsules containing quinin and aspirin become soft? Do they develop a toxic composition?

2. What is the value of sodium bicarbonate in the compound acetanilid powder?

C. W. Head, M.D., Windsor, Mo.

Answer.—1. The conversion of quinin to the toxic substance quinotoxin by acids, with particular reference to acetylsalicylic acid (aspirin), was discussed in The Journal, Dec. 18, 1915, p. 2187.

2. Worth Hale has reported experiments which indicate that sodium bicarbonate lessens the toxicity of acetanilid both on the heart and on the intact animal (The Journal, Oct. 23, 1909, p. 1403). In view of his work he suggested that, to lessen its toxicity, 3 grains of sodium bicarbonate to 2 grains of acetanilid may be tried (The Journal, Sept. 2, 1911, p. 840).

BOOKS ON HEALTH OF WAR WORKERS

To the Editor:—Please inform me where I can obtain the following: Goldmark, "Fatigue and Efficiency"; Lee, "Fatigue"; Harvey Lectures, 1906-1907; Vernon, "Output in Relation to Hours of Work," British *Health of Munitions Workers Committee.* They are references mentioned in The Journal, Oct. 6, 1916, p. 1125.

Carl J. Gade, M.D., Bridgeport, Conn.

Answer.—These may be obtained from the publishers or through any bookseller.

Goldmark, Josephine: Fatigue and Efficiency, published by Russell Sage Foundation, 1 Madison Avenue, New York, $2.
Lee, F. S.: Fatigue, Harvey Lectures, 1906-1907, p. 172, J. B. Lippincott Company, Philadelphia, $2.50.
Vernon, H. M.: Output in Relation to Hours of Work, Memorandum 12, British Health of Munitions Workers Committee, 1916, Wyman & Sons, 29 Breams Building, Fetter Lane, E. C., London, 1½ d.

RANCH ACCOMMODATIONS FOR NERVOUS GIRL

To the Editor:—I wish to learn of a ranch in the Southwest where accommodation for a nervous girl, aged 11, and her mother could be found for the winter. The place should be one in which there would be an opportunity to live out of doors and ride.

M.D., New York.

Answer.—We submit this communication to our readers. Replies should be sent to The Journal office where they will be forwarded to the physician who asks the question. Those answering should give the price that would be charged for the service asked.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

ARKANSAS: Little Rock, Nov. 13-14. Sec., Dr. T. J. Stout, Brinkley.

ARKANSAS: Eclectic: Little Rock, Nov. 13. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

CONNECTICUT: New Haven, Nov. 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

CONNECTICUT: Homeopathic: New Haven, Nov. 13. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

CONNECTICUT: Eclectic: New Haven, Nov. 13. Pres., Dr. J. W. Fyfe, Saugatuck.

FLORIDA: Jacksonville, Dec. 4-5. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

MAINE: Portland, Nov. 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

NEVADA: Carson City, Nov. 5. Sec., Dr. S. L. Lee, Carson City.

OHIO: Columbus, Dec. 4-6. Sec. Pro-tem., Dr. Herbert M. Platter, 185 E. State St., Columbus.

SOUTH CAROLINA: Columbia, Nov. 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

TEXAS: Dallas, Nov. 20-22. Sec., Dr. M. F. Bettencourt, Mart.

WEST VIRGINIA: Clarksburg, Nov. 21-23. Chairman, Dr. S. L. Jepson, Capitol Bldg., Charleston.

Hawaii May Examination

Dr. R. W. Benz, chairman of the Board of Medical Examiners of Hawaii, reports that 3 candidates were licensed at the examination held at Honolulu, May 7-10, 1917. The following colleges were represented:

PASSED

College	Year Grad.	Total No. Licensed
University of California	(1916)	1
Sendai Special Medical School, Japan	(1908)	1
Osaka Prefectural College of Medicine, Japan	(1905)	1

Iowa June Examination

Dr. Guilford H. Sumner, secretary of the Iowa State Board of Medical Examiners, reports the written examination held at Iowa City, June 7-9, 1917. The examination covered 8 subjects and included 100 question. An average of 75 per cent. with not less than 60 per cent. in certain subjects, was required to pass. Twenty-nine candidates were examined, all of whom passed. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Chicago College of Medicine and Surgery	(1917)	90
Northwestern University	(1916)	82, 95
Rush Medical College	(1915)	97
University of Illinois	(1916)	92
State University of Iowa College of Homeo. Medicine	(1917)	93
State University of Iowa College of Medicine	(1917)	86, 89, 90, 91, 91, 91, 91, 91, 91, 92, 92, 92, 93, 93, 94, 94, 94, 95, 96.
St. Louis University	(1917)	82
Eclectic Medical College	(1917)	92.5
University of Pennsylvania	(1917)	94
Lincoln Memorial University	(1915)	76

Minnesota June Examination

Dr. Thomas McDavitt, secretary of the Minnesota State Board of Medical Examiners, reports the oral, practical and written examination held at Minneapolis, June 5-7, 1917. The examination covered 18 subjects and included 80 questions. An average of 75 per cent. was required to pass. Thirty-five candidates were examined, all of whom passed. Five candidates were licensed through reciprocity. The following colleges were represented:

PASSED

College	Year Grad.	Per Cent.
Rush Medical College	(1917)	90, 91, 92, 92.
University of Illinois	(1917)	85
Harvard University	(1914)	96
University of Minnesota	(1917) 86, 91; (1918*)	80, 82, 83, 84, 84, 85, 85, 85, 86, 86, 87, 87, 87, 87, 87, 88, 88, 88, 89, 89, 89, 89, 90, 91, 92, 93.
Columbia University	(1915)	87

LICENSED THROUGH RECIPROCITY

College	Year Grad.	Reciprocity with
Northwestern University	(1916)	Illinois
John A. Creighton Medical College	(1916)	Nebraska
Jefferson Medical College of Philadelphia	(1913)	Wisconsin
Medical College of Virginia	(1911)	Virginia

* A year's internship in an approved hospital is required for graduation from the University of Minnesota Medical School, but only completion of a four-year medical course is required for licensure in Minnesota.

Book Notices

THE MODERN MILK PROBLEM IN SANITATION, ECONOMICS AND AGRICULTURE. By J. Scott McNutt, Lecturer on Public Health Service in the Massachusetts Institute of Technology. Cloth. Price, $2. Pp. 258, with illustrations. New York: The Macmillan Company, 1917.

A large number of interesting facts on the milk supply problem are brought together in this book. The discussion of the economic and administrative side of the question is particularly complete, and the author seems to appreciate the complexity of the whole question. He states emphatically (page 158) that sanitary milk need not cost much more than insanitary milk, but he also recognizes that in justice to the milk producer some increase in price is necessary on purely economic grounds. He calls attention, however, to the difference in local conditions and to the desirability of cooperation on the part of the different interests concerned in milk production and distribution. We note that the retail price of milk in Boston, which is in a section of the country where milk production is not especially cheap, is 11 cents a quart. At the present writing, in Chicago the consumer is requested to pay 13 cents a quart. The layman might suppose that conditions for cheap milk production are more favorable in Boston than in Chicago. It cannot be said that Mr. McNutt has proposed any general solution for the milk problem, but he has gathered together a number of pertinent facts and has called attention to data and lines of argument often ignored in discussions of the question.

DIAGNOSIS FROM OCULAR SYMPTOMS. By Matthias Lanckton Foster, M.D., F.A.C.S., Ophthalmic Surgeon to the New Rochelle Hospital. Cloth. Price, $6. Pp. 490. New York: Rebman Company, 1917.

This book is written from an entirely new point of view. The subject matter is arranged in the usual way—cornea, iris, optic nerve, etc.—and the various diseases and conditions are treated seriatim; but only their symptoms, objective and subjective, and "as such," are considered. There is nothing on history, course, morbid anatomy, pathogenesis, complications, sequelae, prognosis or treatment, and therefore no real differential diagnosis, which must concern all these things. It is obviously no book for the beginner; it will mislead the general practitioner, and it is not encyclopedic enough on symptoms to be a final reference book. Yet the author frankly meets these criticisms in his preface. He does not pretend to write a textbook. He just treats of symptoms, and has thereby done us a definite service; for we cannot get away from symptoms: they are and should be with us morning, noon and night. We have our works on pathology alone, on treatment alone, medical and surgical; why not on symptoms alone? The author's style is easy and fluent, and one reads on and on with interest and profit, surprised and often a little disconcerted that so true a picture of things is called up by symptoms alone.

SLOVAK (SLAVISH) SELF-TAUGHT. By S. Morávek. Cloth. Price, $1. Pp. 126. Monessen, Pa.: The Author, 1917.

Slovak is the language spoken by the people of northern Hungary and Moravia. It is closely allied to all the Slavic languages, so that a smattering of Slovak helps the physician in dealing with Slavs in general. With a little further study he can deal with Polish, Croatian, Bohemian, Serbian and Russian patients. It is an advantage that the Slavic languages resemble each other more as spoken than as written. "Slovak Self-Taught" is not a pocket manual, but has a stout cover about 9 by 6 inches. It contains thirty-six pages of classified phrases in common use, with the pronunciation, a vocabulary of thirty pages, and fifty-four pages of grammar. The print is unusually large and clear. A page and a half are devoted to "With the Doctor." This section is fairly complete, but it does not contain the terms of command: "Sleep" and "Wake up," which may be needed in case hypnotic suggestion is being used. The author has supplied these additionally, on request, as follows:

Sleep	Spi	(spi)
Wake up	Prebud sa	(prebudY sa)

Applicable in War Time.—The great business of life is to be, to do, to do without and to depart.—John Morley.

Medicolegal

Valid Provisions for Dealing with Tuberculosis

(Sacramento County vs. Chambers (Calif.), 164 Pac. R. 613)

The District Court of Appeal of California, Third District holds valid the act of 1915 which provides for the establishment and maintenance of a bureau of tuberculosis under the direction of the state board of health, defining its powers and duties, and provides for the granting of state aid to cities, counties, cities and counties, and groups of counties for the support and care of persons afflicted with tuberculosis. The court says that the fundamental proposition on which the argument against the constitutional propriety of the provision of the act authorizing the payment of certain sums to the counties was that the state has made it the duty of counties to maintain hospitals for the care, support and treatment of the indigent sick, and therefore the burden of supporting such hospitals is on the counties, and not on the state. There is no doubt the legislature intended to and did transfer from its own shoulders, and so placed on the counties, the duty and burden of caring for, supporting and treating the classes of persons mentioned. But this does not mean that the state has thus forever surrendered all control over those matters or the right itself to exercise full and complete and exclusive jurisdiction and control over hospitals for the indigent sick and helpless paupers. The constitution does not require this burden to be borne by the counties. The state may so transfer it to counties, however, in the exercise of its sovereignty. On the other hand, the state may take back and itself resume the exercise of certain functions which it has delegated to those local agencies; and, in some cases, particularly those having reference to the state's police power, the court knows of no reason, constitutional or otherwise, why the state and the counties may not act conjointly and synchronously in carrying out the policies of the former.

By health statistics and data gathered and published by the public health department of the state government, it has been shown that over one seventh of all the deaths in California, prior to the passage and enforcement of the law here under attack, were caused by this dread and justly dreaded disease, tuberculosis, and that, down to the time mentioned, the ratio of deaths from it was constantly increasing. Since then there has been a marked decrease in deaths from this cause. Still there are in the state large numbers of persons suffering from this deadly disease, mostly in the form of attacks on the pulmonary organs, very many of which persons are without financial means to pay for their own support and medical treatment, and without relatives legally liable or financially able to give them support and the care and treatment indispensable in such cases. The existence of such conditions is obviously a positive menace to the health of the inhabitants of the state.

The state undoubtedly has the right, under its police power, to adopt sanitary or other appropriate regulations, applicable to the whole state and to private as well as to public tuberculosis sanatoriums, looking to the stamping out of the disease and the prevention of its increase, and thus to the protection of the public health. With respect to county tuberculosis wards or hospitals, it proposes by the law in question to do no more than this. In authorizing the payment by the state of the sum named in the act to counties maintaining such wards or hospitals according to regulations formulated and promulgated by its health department, the legislature did not intend, nor was it the object of the act, to appropriate the state's money to or for the benefit of counties, but only to facilitate the proper execution of its scheme to control in part or itself supervise the matter of the treatment of indigent tuberculous patients, legally entitled to be taken care of at public expense. Obviously, the counties to which these moneys are authorized to be paid are, as to such money, mere trustees of an express trust, with absolutely no authority or right to divert the use of it to any other than the purpose or object for which it has been expressly appropriated by the state.

Society Proceedings

COMING MEETINGS

Amer. Acad. of Ophthal. and Oto-Laryng., Pittsburgh, Oct. 29-30.
Amer. Public Health Association, Washington, D. C., Dec. 4-7.
Clinical Congress of Surgeons, Chicago, Oct. 22-26.
Kentucky State Medical Association, Louisville, Nov. 6-9.
Southern Medical Association, Memphis, November 12-15.
Virginia State Medical Society, Roanoke, Oct. 23-26.

AMERICAN ASSOCIATION OF OBSTETRICIANS AND GYNECOLOGISTS

Thirtieth Annual Meeting, held at Newark, N. J., Sept. 17-19, 1017

(Continued from page 1294)

Acute Dilatation of the Uterus

DR. N. STONE SCOTT, Cleveland: A review of the literature gives the impression that acute dilatation of the uterus is of infrequent occurrence. A study of six cases has brought me to the conclusion that acute dilatation is not rare and has furnished an explanation of this apparent scarcity. Acute dilatation during the early months of pregnancy presents a marked difference from acute dilatation at term, in that it has no appreciable influence on the bleeding. The more or less complete hemostasis occurring after the complete separation of the placenta after an ordinary miscarriage depends on the hemostatic properties of the blood and the blood vessels, and this is not materially modified by an acute dilatation. A uterus at full term, which has been emptied of its contents, will cause an alarming hemorrhage if it does not contract and control the bleeding by muscular action. This is due to the changes which have taken place in the blood vessels during the pregnancy. Should a contracted uterus lose its muscular tone and again dilate, the same alarming hemorrhage will supervene. Some authors believe that acute dilatation is a phenomenon of sepsis. Maier thinks acute dilatation will occur only when there has been a prior disease of the muscle wall. My cases support the theory that the disease must be in the uterine cornua, where interference with the uterine innervation will be most marked. Three of my patients had a placental implantation in one or the other horn, and the fourth had a small fibroid in the same place. Great dilatation occurred only in those who had been recently pregnant.

DISCUSSION

DR. HUGO O. PANTZER, Indianapolis: A case occurred in my practice within the last seven weeks. The woman, aged 38, was operated on for appendicitis. She had had continuous bleeding for six weeks. She had been married many years, but was never before pregnant. The breast changes were indifferent; a diagnosis of pregnancy was doubtful. A fibroid tumor as a possibility was entertained. On dilating the uterus I found the phenomenon described by the essayist. For a moment I was in doubt as to whether or not I had perforated the uterus. I opened the abdomen from above and found the uterus relatively small and not perforated. I removed the fetus through an opening made in the uterus.

DR. EDWARD J. ILL, Newark, N. J.: I have heard of these cases, but I have never seen one. What I have seen, when we thought we had such a case, was that the curet or sound was passed through the posterior wall of the uterus into the peritoneal cavity below the os internum. I think that in Dr. Pantzer's case there was a perforation of the uterus low down behind or at either side. I have seen a crochet needle go into the cellular tissue behind the uterus.

DR. WILLIAM H. HUMISTON, Cleveland: A woman who had had several attacks of appendicitis aborted. I introduced a dull curet, and it went on in without any effort. I had perforated the uterus. I removed the placental tissue and opened the abdomen. There was a puncture in the posterior uterine wall. I removed the appendix, sewed up the hole in the uterus, cleaned out a few clots in the pelvis, and the woman recovered.

DR. JAMES E. DAVIS, Detroit: When a muscle is stimulated with the electric current, the muscle bellies out. If we continue the application of the electric current until extreme irritation is reached, the muscle will lengthen. According to Young, the epithelium of the chorionic villi, during the first three or four months of pregnancy, throws out an enzyme which has the effect of producing, first, edema, and later on marked dilatation of the blood vessels. This edema may be so marked as to extend throughout the entire body, a condition which has been regarded as an error in the kidney condition.

Dr. J. Henry Carstens, Detroit: As the result of profound anesthesia there is relaxation of the uterine muscles, a dilatation. The muscles become flabby, and when a sound is introduced into the uterus, provided the muscles have not undergone fatty degeneration, the uterus is shoved away up and it seems ballooned when it is not. The uterus is of normal size, but its walls are thin.

Dr. Van Amber Brown, Detroit: Was there in any of your cases a marked anemia that antedated the pregnancy?

Dr. N. Stone Scott, Cleveland: I would not say that none of them had anemia, but some of them did not have sufficient bleeding to produce anemia. Some of the patients were healthy young women who were not anemic.

Mixed Cell Tumor of the Kidney

Dr. William E. Darnall, Atlantic City, N. J.: These tumors are considered malignant, but may be benign. Whether they are to be classed with carcinomas or sarcomas seems to be a question pathologists have never definitely decided. Metastases occur late. The suprarenal tumor may arise from suprarenal rests in ectopic portions of kidney, ovary, testicle, liver, mesentery, lungs or bones. These tumors are always made up of mixed cells. The term "hypernephroma" has been applied to them, but hypernephroma may mean almost anything that is a kidney tumor. The immediate mortality from operation is high. Recurrences are said to take place in from 70 to 80 per cent. of the cases. Early diagnosis and operation are the only hope of saving more of these patients. A large percentage of them develop metastases and die. Some, however, have remained well after the removal of the tumor. More favorable results might be obtained if the patients could be discovered and operated on earlier.

DISCUSSION

Dr. E. Gustav Zinke, Cincinnati: I am reminded of a theory of the occurrence of cancer that has been more or less abandoned: that all cancers are really of embryonal origin. Some of these embryonal cells become shut off from the rest; they go to sleep, as it were; they remain inactive and inert for years, and sometimes, as the result of an accident, a fall or a blow, or in consequence of some irritation, they are reawakened, they become active, and the result is a malignant growth.

Dr. Gordon K. Dickinson, Jersey City, N. J.: Dr. Carstens brought out at the meeting of this association a year or two ago the fact that there may be many severe continued irritations without producing carcinoma. The theory of Cohnheim that cancer is of embryonal origin appeals very strongly to me.

The Left Fallopian Tube and Intestinal Stasis

Dr. Douglas H. Stewart, New York: A concealed gonococcus infection may set up a salpingitis and an ileus. In two patients whose fallopian tubes showed no change, except such as might be expected to occur from an excess of nutrition, a portion of such tubes adhered to the anterior wall of the rectum, formed a band there, obstructed the fecal flow, and at the same time derived a new and an additional source of blood supply. Such an obstruction may be differentiated from a Houston's valve because it is rigid and unyielding and because it is so plainly not within the lumen, but on the outside of the rectal wall. As a result of fatigue and muscular exhaustion due to the constant if partial resistance of the obstacle, the bowel balloons both above and below the band. The condition is not a rare one. Any surgeon coming across it during his exploration of an abdomen would simply term it a band, would cut it and relieve all the symptoms without troubling himself to determine the nature and origin of that band. Both my patients were well past the menopause, yet the new blood supply prevented atrophy of that portion of the tube that had become adherent. Removal of the hypertrophied section relieved all adverse symptoms by freeing the intestine and allowing it to resume its functions unhampered.

(To be continued)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Public Health, Boston

September, VII, No. 9

1 Illegal Practitioners, Fakers and Charlatans. G. A. Jordan, St. Louis.—p. 725.
2 *Council of National Defense.* F. Martin, Washington, D. C.—p. 733.
3 Menace *of Dusty Trades.* W. G. Thompson, New York.—*p. 737.*
4 Uses of Morbidity Reports *by Minnesota State* Department of Health. A. J. Chesley, Minneapolis.—p. 744.
5 Recent Developments *in Design of* Municipal Waste Disposal Plants. *G. R. Tuska,* New York.—*p. 754.*
6 Diagnostic Laboratories in Public Health *Work. W. D. Stovall,* Madison, *Wis.—p. 759.*
7 Check for Registration of Births. *W. H. Davis,* Washington, D. C.—p. 762.
8 *Visceral Changes* in Wood Alcohol Poisoning by Inhalation. A. A. Eisenberg, Cleveland.—*p. 765.*
9 Relation of Public Health Service to Problems of Industrial Hygiene. J. W. *Kerr.—p. 776.*
10 Eye Conditions Shown in Medical Inspection of Schools. W. H. Peters and R. B. *Irwin.—p. 782.*
11 Some *Differential Reactions* of Coli-Like Bacteria. M. Levine, Ames, Iowa.—p. 784.
12 Fallacies in Investigation of Water Supplies. H. A. Whittaker. —p. 785.
13 Necessity of Graphic Illustration *of Sanitary Conditions* in Community. M. R. Mobley, Florence, S. C.—p. 787.

Boston Medical and Surgical Journal

September 27, CLXXVII, No. 13

14 Foreign Bodies in Eye. J. F. Curran, Worcester.—p. 435
15 Chinese Barber and His Use of Aural *Instruments.* A. M. Dunlap, Shanghai, China.—p. 438.
16 Results of Further Study in Leg Rotation. C. L. Lowman, Los Angeles.—p. 440.
17 Case of Carcinoma of Umbilicus. Secondary to Intestine Cancer. M. G. Wohl, Omaha.—p. 442.
18 *Radium Treatment of Bladder and *Prostatic Carcinoma.* B. S. *Barringer, New York.*—p. 444.

18. Radium Treatment of Carcinoma of Bladder and Prostate.—Two of twenty-five cases of carcinoma of the bladder treated by Barringer would, *he says, have been considered* good operative risks; the other twenty-three cases, because of the extent of the tumors, were all impossible operative risks. In four of the twenty-five cases (three confirmed microscopically as carcinoma) radium has locally removed the growth. One of these has been cystoscopically cured *for ten and one-half months, one for five months,* and one recently. One has what is probably a slight local recurrence, although pathologic examination of a piece removed does not confirm this view. From results in these four cases it appears that radium can do as much as surgery for cases of bladder carcinoma without subjecting the patient to the danger and discomfort of a major operation. From thirty cases of carcinoma of the prostate treated by radium since October, 1915, the following conclusions are drawn: Radium treatment has caused with surprising regularity the *reduction or disappearance* of carcinomatous nodules of the prostate, in both early and advanced cases. The reduction which occurs *in carcinomatous lobes is,* so far as has been observed, permanent. The symptoms in those cases in which the carcinoma had been reduced show striking improvement. The primary effect of the radium may be to increase the amount of residual urine (if there be any). The ultimate effect of the radium application on residual urine is *probably negative,* the amount neither increasing nor *decreasing.* No sloughs have resulted from the radium needles. Radium apparently has a selective action on carcinoma. In one case *in which* the prostate was removed because of urinary *retention,* a moderate dose of radium was given five months before the prostatectomy. The prostate had been considerably reduced in size following the radium treatment. At operation the prostate shelled out like a nonmalignant adenoma. Very large carcinomas with cachexia and loss of weight are beyond radium or any other treatment.

Georgia Medical Association Journal, Augusta

September, VII, No. 5

19 Subparietal Injuries of Intestines and Kidney; Report of Cases. C. W. Roberts, Atlanta.—p. 81.
20 Acidosis. W. L. Funkhouser, Rome.—p. 86.
21 Gastric and Duodenal Ulcer. G. P. Huguley and G. C. Mizell, Atlanta.—p. 88.
22 *Modification of Noguchi's Complement Fixation Test for Syphilis. L. Howard, Savannah.—p. 95.
23 Preparation of Substances for Intraspinal Injection in Syphilis of Central Nervous System. A. H. Bunce, Atlanta.—p. 97.
24 Intraspinal Therapy in Syphilitic Disease of Nervous System. L. M. Gaines, Atlanta.—p. 100.

22. **Modification of Noguchi Test for Syphilis.**—In using the Noguchi system Howard has found it of great advantage to sensitize the corpuscles with amboceptor before adding them to tubes containing patient's serum, complement and antigen. He snips strips of amboceptor paper into short lengths, enough to give a certain excess of amboceptor for the tubes needed. If, for example, ten tubes requiring two units each of amboceptor are desired, paper estimated to contain twenty-four units is used. These small bits of paper are placed in a centrifuge tube with 5 or 6 c.c. of normal saline solution and agitated every few minutes for thirty minutes to dissolve out all the amboceptor. The tube is then centrifuged for a short time to clear the solution of particles of paper, and the amboceptor solution is poured off into another tube. To this is added the corpuscles to be used in the tests at hand. If ten tubes, as for above example, 1 c.c. of a 10 per cent. suspension of washed human corpuscles is added and mixed thoroughly with a pipet. The mixture of amboceptor and corpuscles is next incubated for one hour. At the same time the rack of tubes containing the other components of the test is placed in the incubator for the same length of time, to allow fixation of complement if syphilitic antibody be present. At the end of the hour, or in less time, it is noted that the corpuscles in the amboceptor corpuscle mixture have dropped to the bottom of the tube and a few revolutions of the centrifuge packs them so tightly that the tube can be inverted in pouring off the saline without loss of a corpuscle. These sensitized corpuscles do not behave like normal ones, but are heavier and will begin to settle in a few seconds after being uniformly emulsified in saline. After pouring off saline which contains excess of amboceptor, sufficient saline is added to make exactly as many cubic centimeters of corpuscle suspension as there are tubes. The corpuscles are now thoroughly emulsified with a pipet and 1 c.c. added to each tube. Hemolysis is noted almost immediately in negative tubes and those containing no antigen. The most obvious advantage in the above procedure is exact control of amboceptor. By using an excess every corpuscle is certain to be completely sensitized while the excess is discarded.

Interstate Medical Journal, St. Louis

September, XXIV, No. 9

25 Social Misfit—Study of Miss X. F. C. Studley, Milwaukee, Wis. —p. 819.
26 Study of Chemical Blood Findings in Various Surgical Conditions, with Special Reference to Prognosis and Comparison with Phenolsulphonephthalein Output. H. J. Scherck and R. B. H. Gradwohl, St. Louis.—p. 831.
27 Group Diagnosis for Clinic Patient. R. Pollock, San Diego, Calif. —p. 840.
28 Management of Pregnancy Complicated by Severe Cardiac Lesions. G. Gellhorn, St. Louis.—p. 842.
29 Case of Pregnancy Complicated by Uncompensated Heart Disease. H. Meyers, Sedalia.—p. 848.
30 Interstitial Tuberculosis of Lungs. M. E. Lapham, Highlands, N. C.—p. 851.
31 Use of Tartar Emetic in Treatment of Malaria—Preliminary Report. M. D. Levy and D. P. Wall, Galveston, Texas.—p. 858.
32 Headaches Due to Ear, Nose and Throat Conditions. W. T. Patton, New Orleans.—p. 861.
33 Aviation and Otology. L. K. Guggenheim, St. Louis.—p. 865.
34 Contagiousness vs. Communicability. D. M. Lewis, New Haven, Conn.—p. 868.
35 Easy and Satisfactory Method of Making and Indexing Surgical Case Records. G. P. LaRoque, Richmond, Va.—p. 875.
36 Hospital for Contagious Diseases in Residential Quarter. C. F. Lynch, Lansing, Mich.—p. 880.
37 Rationale of Pollen Extract Therapeusis of Hay Fever; Report of One Hundred and Twenty-seven Cases. N. S. Ferry, Detroit. —p. 884.

Journal of Experimental Medicine, Baltimore

October, XXVI, No. 4

38 *Neutralization of Antipneumococcus Immune Bodies by Infected Exudates and Serums. R. Cole, New York.—p. 453.
39 *Elaboration of Specific Soluble Substance by Pneumococcus During Growth. A. R. Dochez and O. T. Avery, New York.—p. 477.
40 *Acidosis and Acid Excretion in Pneumonia. W. W. Palmer, New York.—p. 495.
41 *Epidemiology of Lobar Pneumonia. E. G. Stillman, New York. —p. 513.
42 *Production of Antipneumococcic Serum. R. Cole and H. F. Moore, New York.—p. 537.
43 *Studies on Antiblastic Immunity. F. G. Blake, New York.—p. 563.
44 Experimental Atherosclerosis. I. Adler, New York.—p. 581.
45 *Prophylactic and Therapeutic Properties of Antitoxin for Bacillus Welchii. C. G. Bull, New York.—p. 603.

38. **Neutralization of Antipneumococcus Immune Bodies.**—In empyema fluids resulting from infection with pneumococci, there are present large amounts of soluble substances which have the property of neutralizing pneumococcus antibodies. Similar substances are found in the blood of infected rabbits. When immune serum is injected into infected rabbits the immune substances disappear very quickly, and therefore are prevented from activity in overcoming the infection. When immune serum is administered to patients severely infected with pneumococci, the immune bodies may also disappear very rapidly, and this disappearance is probably associated with the presence of such soluble substances in the blood. The serum only becomes effective when these substances are neutralized. The study of agglutination curves is of value in showing why in certain instances favorable results have not followed the use of immune serum. Cole says that it is important that in severely infected patients the serum be administered early in the disease and that the initial dosage be large.

39. **Elaboration of Specific Soluble Substance by Pneumococcus.**—A specifically reacting substance of bacterial origin is present in the cell-free fluids of young cultures of pneumococcus. This substance is present when the organisms are growing at their maximum rate and undergoing little or no cell death, and consequently its presence is not dependent on cell disintegration but represents the extrusion of bacterial substance by the living organism. The blood and urine of rabbits experimentally infected with pneumococcus contain a similar specific soluble substance during the early hours of the infectious process. Human beings suffering from lobar pneumonia have in their blood, and more frequently in their urine, a specific soluble substance of pneumococcus origin. The amount of this substance present in the urine varies in different individuals, and the presence of a large amount is of unfavorable prognostic import. This specific precipitin reaction in the urine is of diagnostic value. Rabbits injected with soluble pneumococcus material continue to excrete this substance for a considerable period of time. The specifically soluble substance obtained from bacterial cultures and from the urine during infection is not destroyed by boiling, by precipitation with alcohol, acetone, or ether, or by trypsin digestion.

40. **Acidosis and Acid Excretion in Pneumonia.**—There is excreted in the urine of persons ill with acute lobar pneumonia a large amount of organic acid which is free at a hydrogen ion concentration of 5.0. Acidosis as determined by the combined carbon dioxid in the plasma, Palmer says, is seldom, if ever, severe.

41. **Epidemiology of Lobar Pneumonia.**—According to Stillman, pneumonia of Type I and Type II are responsible for the majority of the cases of lobar pneumonia. Among the pneumococci found in the mouths of healthy individuals Type IV predominates, Type III is frequent, and atypical organisms of Type II are occasionally found. Healthy persons intimately associated with cases of lobar pneumonia

may harbor in their mouth secretions the highly parasitic pneumococcus of Types I and II. Occasionally a carrier of Type I or Type II pneumococcus is encountered in whom it is impossible to trace any contact with an infected patient. From the dust of homes where cases of pneumonia due to Types I and II have occurred, pneumococci of the same type may be recovered.

42. **Production of Antipneumococcic Serum.**—In the production of immune serum for therapeutic purposes Cole and Moore say that strict attention must be paid to the immunologic specificity of the bacteria used for immunization. At present the only serum of which the therapeutic value has been proved is that effective against Type I pneumococcus infection. This serum should have agglutinating power for Type I pneumococcus and should have the power of protecting mice against large amounts of virulent culture. Experiments have shown that for producing the primary immunity most rapidly several series of small doses of dead cultures should be given, the injections being made daily for six to seven days, followed by a week in which no injections are made. To produce the highest type of immunity, probably, living organisms are required. These should be given in moderate doses daily for three days, with an interval of a week between each series of injections. By following accurately the methods described, horses may be made to produce rapidly a high grade of specific serum. The observations so far made indicate the importance of employing small doses of culture frequently repeated in this form of immunization.

43. **Antiblastic Immunity.**—Antipneumococcus serum under certain conditions apparently inhibits or retards the metabolic activities of the homologous pneumococcus. Antipneumococcus serum exhausted of its agglutinin content possesses no inhibitory properties. The degree of inhibitory action of antipneumococcus serum parallels its agglutinating power. No evidence has been found to indicate that the inhibition of the metabolic activities of the pneumococcus by antipneumococcus serum is due to a specific anti-enzymotic property of the serum. The evidence which has been obtained indicates that the apparent inhibition of metabolic activity that occurs under certain conditions is due to agglutination of the pneumococci by the antipneumococcus serum and their consequent inability to grow in intimate contact with the whole medium. Antistaphylococcus serum inhibits the liquefaction of gelatin and the formation of a pigment by *Staphylococcus pyogenes-aureus*. Further experimentation is necessary to determine the mechanism of this inhibitory action. Antistaphylococcus serum does not inhibit those metabolic activities of *Staphylococcus pyogenes-aureus* essential to the growth and multiplication of the organisms.

45. **Antitoxin for Bacillus Welchii.**—Bull has been able to confer on guinea-pigs a passive immunity of about two weeks' duration to *B. welchii* toxin through a protective administration of the antitoxin. Guinea-pigs which had received a prophylactic dose of *B. welchii* antitoxin exhibited pronounced resistance to infection with the virulent bacill for a period of twelve days. Established infections in guinea-pigs with *B. welchii* have been arrested and controlled by treatment with the antitoxin. Bull expresses the opinion that it will be possible to prevent *B. welchii* infection in man through the prophylactic use of the antitoxin, and developed cases of the infection may be controlled by therapeutic injections of the same agent.

Journal of Infectious Diseases, Chicago

October, XXI, No. 4

46 Surface Sterilization of Tissues for Bacterial Studies. D. M.
Davis and R. Rosen, Baltimore.—p. 327.
47 *Coccobacillus (Foetidus) Ozenae of Perez. H. C. Ward, Detroit.
—p. 338.
48 *Yeast-Like Fungi of Human Intestinal Tract. H. W. Anderson,
Urbana, Ill.—p. 341.
49 *Stable Pollen Antigen. R. O. Clock, Pearl River, N. Y.—p. 387.
50 Food Accessory Factors (Vitamins) in Bacterial Culture with
Especial Reference to Hemophilic Bacilli I. D. J. Davis, Chicago.—p. 392.
51 *Preservation of Antisheep Hemolytic Amboceptor in Glycerol. R.
O. Clock and S. D. Beard, Pearl River, N. Y.—p. 404.
52 *Studies on Pneumococci and Streptococci. P. W. Aschner, New
York.—p. 409.

47. **Coccobacillus Ozenae of Perez.**—The characteristics of the bacillus of Perez are summarized by Ward as follows: It is gram-negative, grows well in mixed broth cultures, causes a slow fermentation of glucose, decomposes proteins with the formation of mercaptan, produces a characteristic pigment in gelatin, and evokes specific agglutinins in rabbits. These characteristics are adequate to distinguish it from other bacilli, with which it may be associated, such as *B. pyocyaneus*, *B. coli*, *B. mucosus*, *B. proteus*, and *B. bronchisepticus*. The bacillus is readily cultivated from the exudate in ozena, with which condition it is closely associated.

48. **Yeast-Like Fungi of Human Intestinal Tract.**—Anderson says that yeast-like fungi are commonly found in the intestinal tract of man. They are of many species and, for the most part, such types as are commonly present in nature and known as "wild yeasts." It is probable that these yeasts are ingested with the food. The feces of persons suffering from gastro-intestinal disorders of various types do not yield a larger number of yeasts than those from healthy persons. There is no one species commonly present in the intestinal tract of either healthy persons or those suffering from gastro-intestinal troubles.

49. **Stable Pollen Antigen.**—Aqueous pollen extracts are unstable and rapidly deteriorate, losing their potency after about three weeks. Clock has prepared stable pollen antigens which he has subjected to rigid tests for stability. A mixture was made of equal parts by weight of the pollens of timothy, red top, June grass, orchard grass, rye, sorrel, dock, daisy, maize, ragweed, and goldenrod—these being the pollens which are known to cause the greatest number of cases of the vernal and the autumnal type of hay-fever. Pollen extracted in 9 per cent. salt solution gave an antigen that deteriorated quite rapidly. Pollen extracted in 66⅔ per cent. glycerol and 33⅓ per cent. saturated sodium chlorid solution gave an antigen that has proved to be remarkable, stable and potent and which remains sterile.

51. **Preservation of Antisheep Hemolytic Amboceptor.**—Fresh antisheep hemolytic amboceptors that were heated to 55 C. for one-half hour, and then mixed with an equal volume of glycerol did not deteriorate, but retained their original titer for three years. During that period anticomplementary properties did not develop. The glycerol in the glycerolated antisheep hemolytic amboceptor did not influence the complement fixation reaction. Fresh antisheep hemolytic amboceptors that were inactivated and then preserved in glycerol, as herein described, were not only remarkably stable but were also protected from bacterial growth for a period of three years.

52. **Pneumococci and Streptococci.**—For the differentiation of the organisms of the pneumococcus-streptococcus group for clinical diagnostic purposes, a morphologic and cultural method which has yielded good results is presented by Aschner. Based on a study of many organisms according to this method, a classification has been adopted which seems to be as definite as can be attained in the present state of knowledge. There is much evidence that the classification is artificial from a biologic point of view, as shown by the variations within the classes, and by the existence of intermediate and transitional forms, as well as by the mutations described. The following mutations have been observed: (1) encapsulated hemolytic streptococcus converted into a pneumococcus; (2) encapsulated anhemolytic streptococcus converted into a pneumococcus; (3) pneumococcus changed into anhemolytic streptococcus; (4) anhemolytic streptococcus converted into a hemolytic streptococcus; (5) *Streptococcus mucosus* changed into an anhemolytic streptococcus.

Journal-Lancet, Minneapolis

October 1, XXXVII, No. 19

53 Intraperitoneal Emergencies. R. L. Murdy, Aberdeen, S. D.—
p. 629.
54 Tonsillectomy; Some Indications for, and Some Observations on
Operation. R. A. Campbell, Minneapolis.—p. 634.
55 Syphilitic Pseudoparalysis (Parrot's Diseases). T. F. Riggs,
Pierre, S. D.—p. 636.
56 Preparation of Material for Laboratory Examination. M. Herzberg, Vermillion, S. D.—p. 638.
57 Scientific Babies. H. B. Wentz, Verona, N. D.—p. 641.

Laryngoscope, St. Louis

September, XXVII, No. 9

58 Society of Progressive Oral Advocates; Its Origin and Purpose. M. A. Goldstein, St. Louis.—p. 661.
59 Two Hundred Consecutive Tonsillectomies under Local Anesthesia. O. Wilkinson, Washington, D. C.—p. 667.
60 Operative Technic in Circumcision of Tonsil. F. G. Murphy, Mason City, Iowa.—p. 672.
61 Ozena Among Various Races of Earth. J. N. Roy, Montreal, Canada.—p. 679.
62 Unusually Large Polypus of Ethmoid. H. B. Orton, Newark, N. J.—p. 684.
63 Case of Traumatic Aphonia. T. A. Cheatham, Birmingham, Ala. —p. 686.
64 Control of Bleeding in Tonsillectomy. W. Dwyer, Hartford, Conn. —p. 688.
65 Lingual Tonsil; General Consideration and Its Neglect. H. B. Cohen, Philadelphia.—p. 691.
66 More Accurate Method of Recording Tracings on Glatzel Mirror. W. O. Bonser, Toledo, Ohio.—p. 701.
67 Ear, Nose and Throat Instrument Box. A. G. Bryant, Boston. —p. 703.
68 Bone Gripping Forceps. A. G. Bryant, Boston.—p. 704.
69 Glass Screen with Adjustable Standard. A. G. Bryant, Boston. —p. 706.

Maine Medical Association Journal, Portland

March, VII, No. 8

70 Fracture Treatment from Standpoint of Orthopedic Surgeon. W. R. MacAusland, Boston.—p. 247.
71 Treatment of Alcoholism and Drug Addiction. C. Scheffel, Brookline, Mass.—p. 256.

April, No. 9

72 Surgical Syphilis. W. P. Coues, Boston.—p. 273.

June, No. 11

73 Acute Unilateral Kidney Infections of Hematogenous Origin. C. N. Peters, Portland.—p. 338.

July, No. 12

74 Medical Defense against Malpractice Suits. J. A. Spalding, Portland.—p. 375.

Medical Record, New York

September 29, XCII, No. 13

75 Certain Technical Refinements in Methods of Intravenous Injection. J. H. Stokes, Rochester, Minn.—p. 529.
76 Adenomyoma of Rectum. F. C. Yeomans, New York.—p. 535.
77 Nonspecific Protein Treatment of Psoriasis. E. Van Ness Van Alstyne, New York.—p. 538.
78 Epidermoid Carcinoma of Large Bronchus with Cavity Formation and Metastasis in Radius. E. Scott and J. W. Leist, Columbus. —p. 541.
79 Physical Attitude and Vital Efficiency. S. W. Geis, New York. —p. 545.

Nebraska State Medical Journal, Norfolk

September, II, No. 9

80 Symptom Complex and Treatment of Anterior Poliomyelitis. B. W. Christie, Omaha.—p. 413.
81 Cholecystostomy. B. R. McGrath, Grand Island.—p. 416.
82 Cholecystectomy. A. F. Jones, Omaha.—p. 419.
83 Diagnosis. C. C. Allison, Omaha.—p. 427.
84 Résumé of Present Views of Kidney Infections. C. C. Johnson, Creighton.—p. 431.
85 Blood Transfusion in Surgical Conditions. A. P. Condon, Omaha. —p. 437.

New York Medical Journal

September 1, CVI, No. 9

86 Internal Secretions as Related to Tuberculosis in Civil and Military Practice. C. E. de M. Sajous, Philadelphia.—p. 389.
87 Diagnosis of Surgical Lesions of Kidney and Ureter. A. R. Stevens, New York.—p. 395.
88 Deviation of Septum and Submucous Resection. H. M. Goddard, Philadelphia.—p. 398.
89 Intussusception in Children; Report of Three Operations. G. Torrance, Birmingham, Ala.—p. 400.
90 Tabes Dorsalis. M. Grossman, New York.—p. 402.
91 Studies in Acute Anterior Poliomyelitis. G. D. Heist, M. S. Cohen and J. A. Kolmer, Philadelphia.—p. 404.
92 Stethoscopic Electrovibratory Percussion. J. P. Hickey, San Francisco.—p. 405.
93 Nonfacetted Gallstone; Diagnosis and Medicosurgical Treatment. A. Peskind, Cleveland.—p. 406.

September 29, No. 13

94 Eye and Ear Surgeon in General Hospital. F. Allport, Chicago. —p. 581.
95 Vegetative Nervous System. T. J. Orbison, Los Angeles.—p. 584.
96 Physician and Patient. J. H. Marcus, Atlantic City, N. J.—p. 589.
97 Anesthetics in Orthopedic Surgery. W. G. Elmer, Philadelphia. —p. 591.
98 Serum and Blood Therapy. A. D. Kaiser, Rochester.—p. 595.
99 Syringomyelia and Leprous Neuritis. H. Climenko, New York. —p. 596.
100 Treatment of Sclerotic Middle Ear Diseases with Radium. Z. von Dworzak, Denver.—p. 598.
101 Dermoid Cyst. W. R. Jackson, Mobile, Ala.—p. 602.
102 Surgical Post on Firing Line. C. G. Cumston, Geneva, Switzerland.—p. 604.

New Orleans Medical and Surgical Journal

October, LXX, No. 4

103 Ureteral Stricture. H. W. E. Walther, New Orleans.—p. 309.
104 *Carbuncle of Upper Lip. M. Bradburn, New Orleans.—p. 314.
105 Lingual Tonsil—Frequently Overlooked Structure. J. B. Larose, New Orleans.—p. 319.
106 Hematemesis and Melena Due to Latent Aneurysm of Aorta. I. I. Lemann, New Orleans.—p. 322.
107 *Are Moving Pictures Injurious to Eyes? C. A. Bahn, New Orleans.—p. 328.
108 *Treatment of Pellagra. A. A. Herold, Shreveport.—p. 333.
109 Frequency and Early Diagnosis of Pulmonary Tuberculosis in Childhood. J. Signorelli, New Orleans.—p. 338.
110 Feebleminded. J. A. O'Hara, New Orleans.—p. 346.
111 Tolerance of Scrotum for Foreign Bodies. P. J. Gelpi, New Orleans.—p. 355.
112 Why Gastro-Enterostomy Fails to Relieve. W. R. Jackson, Mobile, Ala.—p. 361.
113 Diagnosis of Leprosy from Public Health Standpoint. G. W. McCoy.—p. 364.
114 Granuloma Venereum. H. de B. Aragao, Rio Janeiro.—p. 369.
115 Dysenteric Endamebae. H. de B. Aragao, Rio Janeiro.—p. 374.

104. **Carbuncle of Upper Lip.**—In considering the treatment of carbuncle of the upper lip Bradburn urges early incision with injection of 5 per cent. phenol solution into the infiltrated tissue. He cites four cases with 50 per cent. mortality.

107. **Moving Pictures and Eyes.**—Bahn believes that moving pictures under favorable conditions do not cause as much fatigue as the same period of concentrated reading. Under unfavorable conditions, moving pictures cause increased fatigue which, if continued, produces symptoms that are unpleasant and may be harmful. Most persons who complain that moving pictures cause ocular discomfort have some ocular defect. A review of the literature to date records no permanent harm to the eyes from moving pictures.

108. **Treatment of Pellagra.**—Cases of five patients are reported by Herold treated by his original method, normal horse serum administered intravenously. He claims for this treatment only that it does in a few days what proper feeding takes weeks to do, and that it will tide over and markedly improve that very troublesome class of patients whose mouths are in such condition that feeding is almost, if not quite, impossible.

New York State Journal of Medicine

September, XVII, No. 9

116 *Treatment of Heart Disease by Drugs. W. D. Alsever, Syracuse. —p. 396.
117 *Treatment of Heart Disease by More and Longer Supervision. R. H. Halsey, New York.—p. 399.
118 *Hydrotherapy of Heart Disease. H. Schoonmaker, Clifton Springs. —p. 401.
119 Testing of Heart's Functional Capacity and Its Relation to Graduated Exercises in Cardiac Insufficiency. T. B. Barringer, Jr., New York.—p. 403.
120 *Whooping Cough is Prevented by Vaccination. G. W. Goler, Rochester.—p. 411.
121 Epidemic of Bacillary Dysentery. J. A. Smith, Albany.—p. 413.
122 Rôle of Food Idiosyncrasies in Practice. F. B. Talbot, Boston. —p. 419.
123 *Treatment of Dysthyroidism by Roentgen Rays. M. B. Palmer, Rochester.—p. 425.

116. **Drugs in Treatment of Heart Disease.**—The drugs which have been used in the symptomatic or palliative treatment of heart disease are legion, which proves their inefficiency. The majority are not worth naming, but a few of them have definite and even life-saving value. These few are discussed by Alsever. The digitalis group, consisting of digitalis, strophanthus, squills, apocynum, etc., stimulates directly all forms of muscle tissues, notably the heart and the vasomotors, and also the medullary centers, notably the pneumogastric and vasoconstrictor centers. As a result of these actions, the heart beats more powerfully and more slowly, the vasomotors contract and often diuresis ensues. These effects are of most importance clinically in auricular fibrillation and auricular flutter, and the results obtained in these disorders have been so marked and so valuable as to

give digitalis its justly great reputation in heart disease. Other types of irregular hearts and hearts with normal mechanism also respond to digitalis but in less degree. Tincture of strophanthus has sometimes been substituted for digitalis with advantage, but in the average case it is less dependable. Its action is practically the same as digitalis. Strophanthin, the active glucoside of strophanthus, is of inestimable value, because by giving $\frac{1}{100}$ grain intravenously one may develop digitalis effects in fifteen minutes. It is safer, however, to give $\frac{1}{250}$ grain and repeat every two hours for three doses, if needed. If a patient has been taking digitalis the administration of strophanthin intravenously is unsafe, because the combined effect may be overwhelming. Squills and apocynum are usually avoided because of their tendency to upset the digestive tract, but apocynum sometimes relieves cardiac dropsy when digitalis fails.

Strychnin should not be used in the belief or hope that it will stimulate the heart any more than other tissues. The caffein group is of considerable value in heart disease. Caffein, theobromin and theophyllin are the members of interest. Sodiosalicylate of theobromin is a powerful diuretic, and oftentimes of great value in cardiac dropsy. It increases the urine through direct stimulation of the kidneys rather than through action on the heart. In doses of from 10 to 15 grains, three or four times daily, it commonly produces marked diuresis in one or two days. When diuresis is established it is well to omit the drug, administering it again later in case of need. Theophyllin is more powerfully diuretic, but it is more nauseating and more expensive, so that theobromin is usually to be preferred. Caffein has been and still is used very largely as a heart stimulant or so-called tonic. Its effect is manifested almost entirely on the central nervous system, particularly on the brain itself. It has a little power to stimulate muscle fibers, but the heart responds no more than all the skeletal muscles. Alcohol is a local stimulant, but after absorption its action is purely depressing, affecting especially the central nervous system and beginning with the highest functions of the mind. Epinephrin is decomposed so quickly in the body that its effect must always be transient, and it is absorbed so slowly from hypodermatic injection that it is difficult to say just what action should be expected. Intravenous injections are followed by slower and stronger heart action and vasoconstriction, but when given by other methods these effects are very uncertain and fleeting.

The nitrites paralyze the vasoconstrictor mechanism and the vagus center, almost reversing the action of digitalis. Inhalations of amyl nitrite produce this effect in a few seconds, and the effect terminates in two or three minutes. Nitroglycerin and sodium nitrite by mouth produce this effect in two or three minutes, and the effect ends in one-half hour to three hours. Erythrol tetranitrate produces the same effect in one hour, and the action may continue for five hours. The nitrites are of great value in relieving the pain of angina pectoris and in obtaining relief from dangerous high blood pressure. It is usually unwise to attempt to beat down high blood pressure, except in an emergency. If a sustained depression of blood pressure is desired it may be obtained by repeating nitroglycerin every two hours or by giving erythrol tetranitrate four to six times a day. Aconite slows the heart by stimulating the vagus center but does not affect the vasomotors, consequently it lowers blood pressure. It may be useful in overacting hearts, as in fevers and in dangerous sustained high pressure.

117. **General Treatment of Heart Disease.**—Halsey emphasizes the importance of constant supervision, frequent rest periods or preventive convalescence and attention to the condition of the teeth and tonsils of children. He says that prevention of the occurrence of heart disease demands annual physical examinations of every individual.

118. **Hydrotherapy of Heart Disease.**—Schoonmaker summarizes his article as follows: First, hydrotherapy in heart disease is based on physiologic response to stimuli and is therefore scientific. Second, in hydrotherapy there are more possibilities for good in the treatment of heart disease than in any other single agent except rest. Third, the saline carbonated bath is especially helpful in the treatment of heart disease, because it makes possible the giving of cold tub baths without undue shock and provides a wide limitation in temperature, time and strength of bath. Fourth, as a therapeutic agent hydrotherapy is not incompatible with any other.

120. **Whooping Cough and Vaccination.**—More than 10,000 children have been vaccinated against whooping cough in Rochester. Less than 5 per cent. of the vaccinated children came down with the disease. They administer four doses four days apart, 500, 1,000 and 3,000 million. Two children exposed to whooping cough just after being vaccinated did not contract whooping cough until a year afterward. One of these patients had whooping cough in such a mild form that it was somewhat difficult to make a diagnosis; the other had whooping cough severely. In thirty-five patients who came down with the disease after whooping cough vaccinations, about half of them seem to have had the disease in modified form.

123. Abstracted in The Journal, June 9, 1917, p. 1777.

Philippine Journal of Science, Manila

November, 1916, XI, Sec. B, No. 6

124 Cultivation of Pathogenic Fungus which Exhibits Botryoid and Leukocytelike Parasitic Forms. H. W. Wade, Manila.—p. 267.
125 Fatal Parasitic Infection in Herd of Cattle and Goats in Ambos Camarines Province. W. H. Boynton and L. D. Wharton, Manila.—p. 285.

West Virginia Medical Journal, Huntington

August, XIII, No. 2

126 Pellagra. C. A. Barlow, Spencer.—p. 41.
127 Erysipelas. O. H. Hoffman, Thomas.—p. 45.
128 Sins of Father. W. C. Slusher, Bluefield.—p. 49.

September, No. 3

129 Back to Pharmacopoeia. T. Nunemaker, Williamson.—p. 85.
130 Acute Acquired Diverticulitis. W. H. St. Clair, Bluefield.—p. 88.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Bristol Medico-Chirurgical Journal

July, XXXV, No. 133

1 Fatigue Induced by Labor. A. F. S. Kent.—p. 47.
2 Gunshot Wounds of Peripheral Nerves. J. M. Clarke.—p. 61.
3 Prevention of Sepsis in War Wounds, with Special Reference to Carrel-Dakin Method. J. Swain.—p. 68.
4 *Acute Pancreatitis; Its Treatment, Record of Three Cases. C. A. Morton.—p. 80.
5 Rectal Diverticula as Causative Factor in Pelvic Inflammation in Women; Report of Two Cases. W. C. Swayne.—p. 91.

4. **Acute Pancreatitis.**—The first case reported by Morton is of special interest from the fact that, although when the abdomen was opened the presence of fat necrosis called attention to the condition of the pancreas, yet when the lesser sac of the peritoneum had been opened by division of the gastrocolic omentum, no definitely abnormal condition of the pancreas could be discovered, nor was the pancreas found to be diseased postmortem until it had been removed from the body, and then some lymph and hemorrhage was seen on its posterior aspect only; and on cutting into it some areas of slight hemorrhage and yellow infiltration were found. The morbid condition was almost confined to the middle of the organ, and although this was the part examined at the operation, none of these morbid changes could have been made out on inspection or palpation of the presenting aspect of the organ, for they were only discoverable on its posterior aspect. The second case is interesting and instructive from the fact that the vomit was fecal. The great interest of the third case was the apparent recovery of the patient after the acute stage. Serious symptoms, however, recurred and led to a fatal termination. The patient had so far recovered from the acute stage (which seemed probably due to the passage of gallstones or their retention in the common duct), that Morton discussed with the patient the desirability of having an operation for removal of gallstones before another attack came on, and yet at that time the acute pancreatitis must have been passing into the sloughing stage. In all three

of the cases there was a history of recurrent attacks of pain in the upper abdomen, not followed by jaundice. In one of the cases the gallbladder contained a large stone, and in another many small stones, and in the third no stones were found in it or in the common duct. It is unlikely that if the attacks in the third case, in which no stones were found in the gallbladder, had been due to the passage of gallstones, that every stone should have been passed before the onset of the fatal illness. Therefore, in this case at any rate, the recurrent attacks were probably not of the nature of gallstone colic, and it is doubtful if they were in the other two.

Indian Medical Gazette, Calcutta

August, LII, No. 8

6 *Experience in Tartar Emetic Treatment of Kala-Azar Including Its Use in Young Children. L. Rogers.—p. 265.
7 Ascaris Lumbricoides and Coprophagia. C. Lane.—p. 269.
8 Ascaris Infection in Man, Pig, Rat and Mouse. F. H. Stewart. —p. 272.
9 Hydatid Disease in Kathiawar. P. T. Kothary.—p. 273.
10 New Operation for Cataract. L. D. Green.—p. 275.
11 Ophthalmic Work in Madras H. Kirkpatrick.—p. 276.
12 Irrigation After Extra-Capsular Extraction of Cataract; Report of Five Hundred Cases. E. A. R. Newman.—p. 280.
13 Divergent Views on Suppuration After Cataract Operation. P. H. Shanker.—p. 281.
14 Medicolegal Case. N. K. Kallianwalla.—p. 284.

6. Tartar Emetic Treatment in Kala-Azar.—In no case in which the tartar emetic treatment has been persevered with has tartar emetic proved unsuccessful in thirty-five consecutive cases of kala-azar in Europeans, who can be kept under observation much longer than Indian patients, the only death having taken place from complicating phthisis several weeks after the kala-azar parasites had been proved to have disappeared from the spleen.

Lancet, London

September 15, II, No. 4907

15 *Cases of Tetanus Treated in Home Military Hospitals. D. Bruce. —p. 411.
16 War Nephritis. C. E. Sundell and A. T. Tankivell.—p. 414.
17 *Treatment of Entameba Histolytica Carriers with Emetin Bismuth Iodid. D. G. Lillie and S. Shepheard.—p. 418.
18 Treatment of Functional Contracture by Fatigue. E. F. Reeve. —p. 419.
19 Active Treatment in Established Eclampsia. G. I. Strachan.—p. 421.
20 Two Cases of Gunshot Fractures of Mandible with Loss of Substance R. J. Green.—p. 422.
21 *Effect of Roentgen Rays on Diseases of Bacterial Origin. C. Kempster.—p. 423.
22 Reflexes in Tetanus. A. G. Gibson.—p. 424.
23 Unusual Form of Hypospadias. T. J. Thomas.—p. 425.
24 Biologic Aspects of Warfare. H. Campbell.—p. 433.

15. Tetanus Treated in Home Military Hospitals.—In the 100 cases of tetanus analyzed by Bruce the mortality was 31 per cent. The ratio of the number of cases of tetanus to the wounded has fallen greatly since the beginning of the war, due in all probability to a great extent to the introduction of prophylactic injections of antitetanic serum. The incubation period tends to become longer, hence there are only twelve cases reported with an incubation of ten days or under. Only ten patients are reported to have received secondary prophylactic injections of antitetanic serum in home hospitals. In regard to the therapeutic effect of antitoxic serum the evidence is still inconclusive. The rate of mortality in generalized tetanus is 34.4 per cent., in localized tetanus, 0.0 per cent.

17. Entameba Histolytica Carriers Treated with Emetin Bismuth Iodid.—The treatment of the 104 cases dealt with in this report was carried out in a special ward set apart for the purpose. The patients were under the care of one medical officer in order to keep the conditions of treatment as uniform as possible. The keratin-coated tabloids and, salol-coated pills were given in doses of 3 grains per day for twelve consecutive days without any additional treatment. The tabloids and pills were given entire as a full dose during breakfast. A patient was considered to be cured when at least six or seven negative tests were obtained over a period of not less than seven weeks from the termination of the course of treatment. It appeared (*a*) that carriers of *E. histolytica* who had not had any injections of emetin hydrochlorid were cured to the extent of 78 per cent. by two courses of the salol-coated emetin bismuth iodid pills. (*b*) In the case of men who had had emetin injections, 72.8 per cent. were cured by two courses of the salol-coated pills. (*c*) In the case of men who had not had emetin injections, 70 per cent. were cured by two courses of the keratin-coated tabloids. (*d*) In the case of men who had had emetin injections, 45.4 per cent. were cured by two courses of the keratin-coated tabloids.

For comparison with the above percentages of cures by a maximum of 72 grains of emetin bismuth iodid carried out in the special ward, Lillie and Shepheard give the number and percentage of cures in the other wards of this hospital. The number of grains of emetin bismuth iodid which these patients received varied from 36 to 200. A patient was regarded as cured after not less than five negative examinations over a period of not less than five weeks after the end of treatment. Out of 160 patients treated 142 were cured, namely, 88.7 per cent. There is no evidence that the length of time between the dates of onset of dysentery symptoms and the treatment has any effect on the chances of cure by emetin bismuth iodid. There is no ground for the belief that the vomiting diminishes the chance of cure by the emetin bismuth iodid treatment. There is nearly as much vomiting among the patients cured as among those cases in which there is relapse. The age of the patient has no effect on the chance of cure by the drug. But there is evidence to show that men over 40 years of age vomit less while undergoing treatment. The salol-coated pills are a distinct improvement on the keratin-coated tabloids from a curative point of view. They also cause less vomiting and loss of weight.

21. Roentgen Rays and Diseases of Bacterial Origin.—Kempster says that the effect of roentgen rays on diseases of bacterial origin is that they have not any germicidal powers, but that they have a decided inhibitory effect on the reproduction and increase of the germs, and that they produce stimulation of the living tissues leading to an increased phagocytosis, which is capable of destroying an unreproductive colony of micro-organisms.

Practitioner, London

September, XCIX, No. 3

25 War Injuries of Jaws. N. G. Bennett.—p. 201.
26 Influence of Gonococcus on Female Pelvic Organs. R. A. Gibbons. —p. 217.
27 Recent Progress in Gynecology. F. McCann.—p. 238.
28 Six Months' Anesthetic Experience at Casualty Clearing Stations on the Somme. C. Corfield—p. 251.
29 Bearer Work on the Somme. W. B. Jepson.—p. 255
30 Compensatory Hypertrophy of Renal Secreting Tubules in Cases of Granular Contracted Kidneys. F. P. Weber.—p. 260.
31 Recent Public Health Work. J. Priestley.—p. 262.
32 Recollections of Surgical Work in Serbia. L. M. Chesney.—p. 274.
33 *Bronchopneumonia Following Pulmonary Hemorrhage. C. G. Reinhardt-Goodwin.—p. 288.
34 Case of Retention of Urine from Bullet in Urethra. A. Robin. —p. 291.
35 *Chronic Aspirinism. W. F. Stiell.—p. 293.

33. Bronchopneumonia Following Pulmonary Hemorrage.—Among 1,000 odd cases admitted to the sanatorium of which Rheinhardt-Goodwin is resident medical officer in the last ten years, only one case of bronchopneumonia following hemoptysis has been recorded, while there have been many hundreds of cases of pulmonary hemorrhage. A woman, aged 27, was admitted, Sept. 30, 1916. There were signs of active disease in the right apex in front, and at the right base behind. The patient appeared to improve and was doing walks of 2 miles daily with satisfactory temperatures. Toward the end of January, 1917, however, there were a few small hemorrhages. Despite prolonged rest in bed there was further bleeding from the lungs. Many times her condition seemed incompatible with life, but each time she improved again. Between May 1 and 14 the patient seemed better, the color had improved, and she was able to take nourishment more freely. May 14, the temperature began to swing more during the twenty-four hours, cough returned, and there was much tenacious expectoration, which was expelled with difficulty. Sweating was profuse. The patient died quite suddenly on April 23. She became more cyanosed, later unconscious, and died with signs of asphyxia. At the commencement of the rise of temperature a hasty examination showed signs of consolidation over the back of the right lung, where there was bronchial breathing, and the same condition was present in the left apical region. Later in the course of the case the bronchial breathing over the right back gave place to loud tubular breathing and coarse crepitations, and these extended around to the base in front. Treatment throughout the case was symptomatic. The points of interest about the case seem to be: (1) the length of time, thirty-four days, the patient survived the onset of the bronchopneumonia; (2) the fact that morphin was not given to check the hemorrhage that apparently caused the complication, and could not, therefore, have been a factor. It was thought unwise to administer morphin on account of the violent vomiting caused on a previous occasion; (3) the three stages into which the course of the illness can be divided: (*a*) the first eleven days when the case conformed to the textbook description of a case of aspiration pneumonia, with continuous temperature, cyanosis, rapid respirations and pulse, absence of cough and sputum and no return of hemorrhage; (*b*) the next twelve days, during which the patient felt much better; (*c*) the last eleven days, when cough and sputum returned, sweating was profuse, the temperature became remittent in type, and the signs and symptoms suggested rapidly breaking down lung with cavity formation.

35. **Chronic Aspirinism.**—A woman, aged 50, suffering with typical rheumatoid arthritis, was in the habit of taking 10 grains of aspirin twice daily for seven years. During the first six years of the treatment the patient did not exhibit a single untoward sign of aspirin poisoning. There were no signs of gastro-intestinal irritation or of cardiac or mental depression. The first untoward sign of aspirin poisoning ensued in January, 1917, in the form of an intractable simple conjunctivitis, the patient complaining of "sand in the eyes." Examination showed a well marked hyperemia of both the palpebral and ocular conjunctiva; there was a slight degree of chemosis and considerable lacrimation. A week later the patient gradually became troubled with an urticaria which was not relieved by either dietetic or by the usual local or internal remedies. In a few days the patient was entirely covered by a typical urticaria major. The rash, which was present both day and night, assumed in parts the characters of an acute circumscribed edema, and elsewhere a severe urticaria bullosa. The symptoms rapidly became somewhat alarming, the patient was weak from insomnia, there were obvious signs of intestinal irritation in the form of diarrhea and vomiting, there was massive edema of the tongue and fauces, so that dysphagia became a marked symptom, and even an urgent tracheotomy was only averted by a prolonged administration of ice and ice water combined with astringent gargles. Vision was entirely obscured by an extreme palpebral edema. The urine gave an intense bluish violet reaction when tested with liquor ferri perchloridi, but the exact percentage of salicyluric acid was not estimated. A diagnosis of chronic aspirinism was made, and the drug rigidly withheld. Medicinal treatment consisted of 5 grains of ichthyol and a mixture containing liquor arsenicalis, tincture of belladona and calcium lactate, three times a day. Bromids were administered in large doses every night. At the end of the seventh week all trace of the urticaria had vanished and the urine was again normal. An interesting feature of the case is the fact that since the onset of the urticaria, although all aspirin had been discontinued, beyond the bony deformities all traces of the rheumatism have been entirely absent.

Quarterly Journal of Medicine, Oxford

July, X, No. 40

36 *Gunshot Wounds of Chest as Seen at Base Hospital in France. A. B. Soltau and J. B Alexander.—p. 259.
37 *Effect of Digitalis in Heart Disease with Pulsus Alternans. J. D. Windle.—p. 274.
38 Critical Review of Treatment of Syphilis. L. W. Harrison.—p. 29[illegible]
39 Purpura in Meningococcal Infections; Report of Cases. T. R. Elliott and H. W. Kaye.—p. 361.

36. **Gunshot Wounds of Chest.**—Among the 139 cases reported by Soltau and Alexander there were 80 cases of hemothorax, 13 of pneumothorax, 31 of collapse alone, 11 cases of nonpenetrating wounds with hemoptysis, 5 cases of penetration with no physical sign, 1 case of concussion pneumonia. Sepsis occurred in 13 cases as follows: following hemothorax (of which 4 were characterized by sudden gas formation, 10 cases; following pneumothorax, 2 cases; with gangrene of lung, 1 case. Mortality: total 10, or 7.1 per cent., as follows: from secondary peritonitis (probably pneumococcal), 1; from pneumothorax and associated tuberculosis, 2; from hemothorax and bronchopneumonia, 1; from gangrene of the lung, 1; from hemothorax and tetanus, 1; from hemothorax with pneumonia and pericarditis, 1; from pneumothorax (1 a few hours after arrival), 2; from pyohemothorax with subphrenic abscess, 1; contralateral collapse was noted in 24 cases.

37. **Effect of Digitalis in Heart Disease.**—Windle's experience of the clinical use of digitalis indicates that the drug has little, if any, power to bring about pulsus alternans in healthy or diseased conditions of the heart; and that in cases of heart disease in which this form of pulse is present there is no evidence that digitalis increases the irregularity; on the other hand, it frequently has the opposite effect, that is to say, the pulses become more equal in force and not uncommonly disparity in strength of the beats is temporarily abolished under the use of the drug, and the patients' symptoms for the time being are improved in all respects; moreover these good results not seldom ensue coincidently with a considerable rise in the blood pressure. Windle has given digitalis for various reasons to persons with healthy hearts, and out of a number of such cases in which the drug was pushed until its full physiologic effect on the stomach was produced, cardiac irregularity, namely, sinus arrhythmia and extrasystoles, ensued in several, but pulsus alternans occurred in one instance only. Windle suggests that it is probable that the beneficial effects of digitalis in heart disease with pulsus alternans are largely due to its action in restoring the tonicity of the heart and slowing its rate, although comparison of the tracings taken before and after the use of the drug suggest that it may exert an improving effect on the essential cause which gives rise to the pulsus alternans; that this supposition is improbable is evidenced by the fact that under certain circumstances the alternation is readily reinduced.

Bulletin de l'Académie de Médecine, Paris

August 28, LXXVIII, No. 33, pp. 151-161

40 Rice to Supplement Wheat Supply. E. Maurel.—p. 152.
41 *Disturbance in the Pupil Reactions after Shell Shock. G. Guillain and A. Barré.—p. 158.
42 Aluminum Shell Cover for Skull Defect. E. Monod-Herzen.—p. 159.

41. **The Pupil Reactions After Shell Shock.**—This report is summarized in the Paris Letter.

Journal d'Urologie, Paris

August, VII, No. 1, pp. 1-102

43 *War Wounds of the Bladder. F. Leguen.—p. 1.
44 *Bilharziosis. Diamantis.—p. 9; Diamantis.—p. 17; L. Morel and I. Maldonado.—p. 27; Diamantis and Lotsy.—p. 59.
45 *Objective Symptoms of Essential Incontinence. P. Nogués.—p. 39.
46 *Rupture of Hydrocele in the Vaginalis. C. Ramos.—p. 45.
47 Blood Cyst in the Prostate in Elderly Diabetic. A. Castano.—p. 65.
48 Urethra with Five Openings. Girard.—p 67.

43. **Wounds of the Bladder.**—Legueu has encountered 43 cases of gunshot wounds involving the bladder predominantly, and has been surprised at the immediate and remote mildness of the clinical picture therefrom. In some cases the bladder had been perforated or the projectile had passed entirely through it, and yet there were no serious symptoms from this at any time. In 6 cases of this kind, no operation and no special treatment was given. In 15 of the total 43 cases, an opening into the rectum or colon had been created by the projectile; in two cases the opening could be felt with the finger in the rectum. Even with these fistulas the evolution of the bladder wound was benign in 12 of the 15, the fistula healing spontaneously in the course of a few weeks or months. A vesicorectal fistula consequently does not call for operative

treatment as a matter of course. Before the projectile reached the bladder it had fractured the bone in 25 of the total 43 cases; the bone involved was the pubis in 17 cases, the sacrum, ilium and hip joint in 2 each. The fracture being compound and bathed in urine leads inevitably to infection unless the hole bored by the missile is given a prompt surgical clearing out, and the urine diverted by suprapubic cystostomy. In the 11 cases in which this was done at once, the wound healed smoothly, and in the 15 cases in which it was done at a later stage, it materially improved conditions. Even although this may not divert all the urine, it answers the purpose sufficiently. Otherwise there is liable to be a persisting fistula between the bladder and the site of the fracture after the skin wound has healed. Pus and sequesters from the suppurating process thus kept up in the bone, find their way into the bladder and start the production of calculi. Calculi may also develop from foreign bodies carried into the bladder with the projectiles. He found calculi in 10 of the 43 cases. In some the nucleus was a scrap of shell. Foreign bodies were removed from the bladder in 12 cases, including bullets in 3, scraps of shell in 5 and sequesters of bone in 4; this group does not include the foreign bodies removed at the first operation. He emphasizes that an extensive bladder wound from which urine escapes at once through the skin should be treated on the same principles as any other war wound, immediate clearing out of the passage made by the projectile, removing all foreign particles even down into the bladder, and sterilizing the whole passage.

44. **Emetin in Treatment of Bilharzia Hematuria.**—Diamantis discusses the clinical picture of bilharziosis with and without infectious complications, and reports striking results from emetin in treatment of noninfected cases. He administered the emetin intravenously, at two or three day intervals, commencing with 0.02 c.c. and increasing rapidly to 0.10, which dose he never surpassed. From fifteen to twenty injections generally answered the purpose. One patient was cured with eight, the largest dose 0.07. Vomiting and nausea are rare, but dizziness is constant, and there is always more or less pronounced asthenia, resembling the weakness liable to follow influenza. He expatiates on the mildness of bilharziosis, saying that the presence of the parasite in the veins does not cause any disturbance, only the passage of the eggs laid in enormous numbers, and passed off in the excreta. In the infected cases no benefit from the emetin was perceptible and the emetin asthenia tended to debilitate further.

44. **Bilharziosis.**—Morel discusses the wide distribution of the *Schistosomum hematobium*. All Africa, the eastern shore of the Mediterranean, the Asiatic shore of the Indian Ocean, and parts of Australia are known to be infested, and the war is bringing it to Europe. He describes four imported cases recently encountered at Paris. From his experience and review of the literature he concludes that there is no specific treatment; emetin and salvarsan seem ineffectual. The only local measure that has shown any efficacy is iodin vapor treatment, and even this acts only on the bladder itself, not killing the parasite or its eggs.

Diamantis and Lotsy report from Cairo a case in which the passage of a kidney stone apparently injured the ureter on its way, thus affording a predisposition so that casual infection with the bilharzia soon afterward caused the parasite to locate in the ureter. The resulting ureterovesical bilharziosis was revealed by radiography, the diagnosis confirmed by finding ova.

45. **The Objective Symptoms of Essential Incontinence of Urine.**—Noguès comments on the frequency of incontinence under the physical and emotional stress of the war. In civil practice the sphincters persist continent under ether or chloroform, but when given to the wounded within eight or ten hours of their wound, involuntary emission of stool and urine is frequent. He has found that with men inclined to incontinence, the Ambard uremic constant may show abnormal conditions. Utteau has noted further a higher proportion of waste contents in urine voided involuntarily. Microscopic examination of the urine may thus suggest an objective basis for the incontinence. This is evidenced further by changes in the contracting power of the vessel. A simple test for this is the injection of from 60 to 100 c.c. of tepid medicated water. With exaggerated contractility, the water is expelled abruptly and it is impossible to introduce more. Or the fluid may enter readily and not be expelled at all notwithstanding tenesmus. The response to these tests of the contractility cannot be controlled by the will. Cystoscopy often shows trabeculae in the bladder with incontinence, and the lumbar puncture fluid showed abnormally high pressure in eight of fifteen cases tested while the albumin content was abnormally high in 94 per cent., namely, above 0.10 gm. Even accepting 0.25 as the extreme physiologic limit, the albumin content was much above this in 27 per cent. This high albumin content may act on the predisposed nerves and thus bring on the incontinence. When one or more of these tests and signs are positive in a case of incontinence, the presumption is against simulation.

46. **Rupture of Hydrocele.**—Besides eight traumatic cases and seven cases of rupture from muscular effort, Ramos has collected a number of cases in which the rupture occurred without effort or traumatism. He reports a personal case in both the first and the last groups, and urges resection of the serosa as it is always more or less pathologic. Otherwise, after absorption of the effusion and obliteration of the perforation, the tumor rapidly returns.

Paris Médical

September 1, VII, No. 35, pp. 177-208

49 *Recent Progress in Otorhinolaryngology. L. Dufourmentel.—p. 177.
50 Calcium Hypochlorite plus Boric Acid as Dressing Powder after Mastoid and Sinus Operations. (La poudre de Vincent dans les évidements.) Guisez.—p. 184.
51 Primary, Latent Mastoiditis Setting Up Distant Extradural Abscess. R. Moreaux.—p. 187.
52 Stomatology During the War. L. Frison.—p. 190
53 Drainage with Operations on the Mouth. H. Chaput.—p. 200.
54 Treatment of War Fracture of the Jaw. L. Dufourmentel, L. Frison, F. Bonnet-Roy and C. Brunet.—p. 202.

September 8, No. 36, pp. 209-224

55 *Associated Injury of Last Four Cranial Nerves. (Syndrome condylo-déchiré postérieur d'origine endocranienne.) J. A. Sicard and L. Rimbaud.—p. 209.
56 *Mercurial Anuria. G. Milian and M. de Saint-Avid.—p. 212.
57 Paralysis of Recurrent Nerve after War Wound at Base of Neck. Guyot and A. d'Auriac.—p 217.
58 Extraction of Projectiles under Screen Control and Protection of the Radiologist. L. Bouchacourt.—p. 219.

49. **Progress in Otorhinolaryngology in 1917.**—Among the recent advances cited is mentioned the method of maintaining respiration and giving the anesthetic through a fine cannula introduced directly into the larynx by puncturing the cricothyroid membrane. Operations on the face and neck can be done then as tranquilly as if remote from the respiratory apparatus. Intratracheal intubation answers the same purpose but this requires more complicated instruments and irritates the vocal cords. Deafness is now classed as exempting from military service when loud speaking is heard only close to the ear. When loud speaking can be heard no farther than one meter, this compels acceptance only for the auxiliary military service; heard at four or five meters is the limit requirement for active service. Eleven different styles of tests for the hearing may be used. They include what is known as the cochleopalpebral reflex, that is, the involuntary winking when a sudden loud sound is heard close to the ear. This reveals simulation of deafness. The double tuning fork test is also instructive. Two tuning forks giving the same tone but with different intensity are placed at the same distance from each ear. With normal hearing the resulting unison is heard only on the side of the loudest tone. One tuning fork can be silenced to test the hearing. The simulator does not learn lip reading like the truly deaf. After a month of training he cannot read from the lips if a noise drowns what is being said. Another trick test is to tell the subject, speaking from some little distance, to raise his hand when he hears the spoken word. Then the examiner, speaking some syllable over and over again, walks toward the subject. The simulator raises his hand as the examiner comes quite close, thus showing that he had heard the command at a distance. Lip reading seems to be the only means of relief for the truly deaf.

55. Associated Paralysis of Last Four Cranial Nerves With and Without Sensory Symptoms.—Sicard and Rimbaud describe the clinical picture presented when a projectile has entered the region immediately below the anterior condylar foramen and the jugular foramen, inducing paralysis of the last four cranial nerves, and of these alone, with this exocranial type of injury. There is also an intracranial set of symptoms of the same type, but this can be induced only by an intracranial affection. In a typical case described, the trouble was of syphilitic origin and materially improved under specific treatment. In this case there were also sensory-motor disturbances in the limbs on that side. There was evidently some process involving the meninges and nerve roots in the left half of the cervicobulbar region. In the projectile cases, the paralysis involved the velum and larynx, the sternocleidomastoid and trapezium, the pharynx and heart nerves (evidenced by extreme tachycardia), and there was also atrophy of that side of the tongue. The young man had been shot with a revolver, the bullet entering back of the left mastoid region. At necropsy after pneumonia two years later the bullet was found in contact with the last four cranial nerves.

56. Mercurial Anuria.—The mercurial poisoning in the young man was manifested mainly by gastro-intestinal uremia, vomiting, diarrhea and Cheyne-Stokes dyspnea with a sensation of oppression in the chest, and anuria complete for two days and almost absolute during the three following days. While the anuria lasted, the young man complained of incessant chilliness, but there was no edema, headache, myosis nor gallop sound. During the polyuria reaction period, symptoms developed suggesting severe peritonitis except that the pulse was regular and slow and the temperature normal. Milian explains this as the result of the loss of fluids, the man having vomited more or less constantly for nine days, and the polyuria following the anuria having drained the body of too much fluid, causing a condition of dehydratation like that of cholera. Milian did not venture to make a saline infusion, fearing to bring on edema, but he gave an intravenous injection of a hypertonic glucose solution, 60 gm. of glucose in 200 c.c. of distilled water. The result, he says, was *réellement miraculeux.*

Presse Médicale, Paris

August 16, XXV, No. 46, pp. 473-480.

59 *Mixed Vaccination against Typhoid and Paratyphoid. F. Widal and A. T. Salimbeni.—p. 473.
60 *Oriental Malaria as seen at Marseilles. P. Ravaut and others. —p. 473.
61 *The Arterial Tension with Aortic Insufficiency. L. A. Amblard. —p. 476.
62 *Experimental Shell Shock. A. Mairet and G. Durante.—p. 478.

59. Single Mixed Vaccination Against Typhoid and Paratyphoid.—Widal and Salimbeni state that they have now a record of 12,000 men inoculated with a single dose of a vaccine consisting of equal numbers of typhoid, paratyphoid A and paratyphoid B bacilli. The dose was 1.5 c.c., containing six thousand million germs, heated, but without antiseptic. This method of vaccination has been in use for over a year, but sufficient time has not yet elapsed for the majority of the men for a decisive judgment as to its efficacy. They made a point of inoculating the men with this single dose, and repeating it in part of the men, hoping to establish thus the relative value of the single and double vaccination. For the present, they counsel the usual double method as being safer, but the outlook for the single, larger dose is growing brighter with every day that passes. It should certainly, they say, be given the preference when there is no time to give the usual two doses, and also in times when these diseases are epidemic. As vaccination is not compulsory for the civilian population, this single inoculation is often preferable for them as they do not take readily to this precautionary measure and often absolutely refuse a second inoculation.

60. Malaria in French Troops.—Ravaut and his co-workers at Marseilles comment on the peculiar persistency of malaria in the troops returning from Macedonia. They reiterate that the malaria parasite is the same old plasmodium and that quinin will kill it. The reasons for its inefficiency in these cases is because the men merely pretend to take the quinin given them. The hospital personnel are deceived and not until the urine was examined and no trace of quinin found in it, was the mystery of the peculiar tenacity of Macedonian malaria solved. They found one soldier who had an accumulation of 304 quinin tablets in his kit, and piles of quinin powders have been found in the mattresses in different hospitals. They describe the various tricks employed to avoid taking the quinin while deceiving the nurse to the effect that the drug is being taken regularly. Treatment of malaria thus assumes a psychologic aspect. A few drops of Tanret's reagent added to 2 c.c. of urine, voided in the presence of the physician, will turn the urine turbid and opalescent if it contains quinin. The reaction is stronger in proportion to the quinin content. The precipitate dissolves in alcohol and with heat, and reappears on cooling, while the albuminoid substances present are not modified and form a lumpy precipitate. This reaction persists positive for twenty-four hours with a dose of 0.5 gm. quinin, and for thirty-six and sometimes forty-eight hours with a dose over 1 gm.

The method of treatment best adapted to obviate deception was found to be the giving of the quinin in water at the two principal meals of the day, using a solution of 33 gm. quinin to the liter. The dose of 30 gm. of the solution corresponds to 1 gm. of the drug. Being taken with a meal and followed with an alkaline or acid drink, the drug is almost always borne without signs of intolerance. Ravaut makes a practice of alternating two days of the quinin with two days of arsenic treatment, and gives epinephrin in addition when there are signs of suprarenal insufficiency. [*Tanret's reagent is a mixture of mercuric chlorid, 1.35 gm.; potassium iodid, 3.32 gm.; acetic acid, 20 c.c. and distilled water to make 60 c.c.. It gives a white precipitate with albumin in urine.*]

61. The Blood Pressure Reveals Aortic Insufficiency.—Amblard analyzes the various factors which influence the blood pressure with aortic insufficiency, and declares that with a minimal pressure of 65 mm. mercury and maximal of 165 mm. we can be certain there is aortic insufficiency even when the lesion is not evident to the ear, and the pulse rate is normal. He estimates the normal range in health as from 80 to 140 mm. With aortitis and with kidney trouble the minimal pressure drops in the same way as with simple aortic insufficiency but it is only a relative drop, the differential pressure keeping about the same in all phases of aortic incompetency. This allows oversight of conditions as the case progresses, and, in connection with the pulse, estimation of the functional capacity of the heart.

62. Experimental Shell Shock.—Mairet and Durante reproduced with rabbits the violent shock from explosion of a large shell in the close vicinity without direct contact with particles of the shell. Five of the twelve animals died in the course of five minutes, one hour, or one to thirteen days. The others after a brief stunned condition, with acceleration of the respiration and transient agitation, rapidly recovered and were slaughtered later. Minute hemorrhages were found numerous in the lungs, spinal cord and nerve roots, and a number of small vessels in the gray substance of the cortex had ruptured into the sheaths of lymphatics. The smallness of these hemorrhages and the fact that they did not diffuse testify that they occurred instantaneously in consequence of the depression which followed the compression. These histologic hemorrhages entail anemia of the small territories beyond them, which explains the areas of softening to which Jumentié and Claude have called attention. These very numerous but very restricted lesions correspond to the symptomatology of men suffering from shell shock, especially the amnesia which may result from the anemia in certain small areas, the neuralgias, and the pains at the emerging points of the nerves. The latter correspond to the intraradicular hemorrhages found in the rabbits. This may also be the explanation of certain cases that have been published in which the clinical picture of tabes came on suddenly after shell shock, with negative Wassermann reaction and a rapid course. It may also explain the galloping course of general paralysis after concussion from an exploding large shell.

Progrès Médical, Paris

August 25, XXXII, No. 34, pp. 279-286

63 Electrically Induced Vertigo with Disease of the Internal Ear. (Epreuve de Babinski.) H. Bourgeois.—p. 279.
64 Orthopedic Apparatus for Paralysis or Mutilation of the Hand. J. Regnault.—p. 280.
65 Present Status of Our Knowledge of Spirochetes. A. Bernard. —p. 283.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 1, XLVII, No. 35, pp. 1121-1152

66 Frequency of Miliary Tuberculosis in the Elderly. E. Braun. —p. 1121.
67 *Tuning-Fork Test for Disease of the Nasal Sinuses. E. Oppikofer.—p. 1130.
68 *Frothy Secretion in the Pyriform Sinus as Sign of Diverticulum in the Esophagus. E. Oppikofer.—p. 1133.

67. **Tuning-Fork Test for Disease of Nasal Sinus.**—Oppikofer states that he was unable to confirm Glas' statements in regard to the diagnostic importance of the Weber tuning-fork test applied in the diagnosis of disease in the nasal sinuses. He applied the test to sixty-nine adults with certain sinusitis, and obtained a positive response only in four, that is, in 5.8 per cent., and the response was not decided in these.

68. **Frothy Sputum in Pyriform Sinus as Sign of Esophagus Diverticulum.**—Oppikofer refers to Wagener's assertion in 1911 that the finding of frothy mucus in the fossa on the side of the larynx, external to the aryepiglottis fold, is presumptive evidence of a diverticulum in the esophagus, just below the pharynx. Von Eicken confirmed his statements in five cases, and Oppikofer reports the same finding in six cases of unmistakable hypopharynx diverticulum. The accumulation of frothy sputum at this point is therefore a simple and reliable sign which can scarcely fail to be present with a diverticulum in this region. At the same time, he warns, the frothy sputum in the hypopharynx may be encountered with any acute or chronic inflammatory affection of the esophagus, although it is not constantly found; also with laryngeal tuberculosis, cancer in the sinus, etc. He has further found the frothy sputum in the pyriform sinus in nineteen out of 200 healthy persons examined, that is, in nearly 10 per cent., but in these cases the sinus was not completely filled, and the frothy sputum was not found constantly in the same individual. It is therefore evident that pronounced frothiness in the hypopharynx is strongly suspicious of a diverticulum in the esophagus but it does not occur exclusively with this.

Gazzetta degli Ospedali e delle Cliniche, Milan

August 16, XXXVIII, No. 65, pp. 897-904

69 Official List of Physical Causes for Exemption from Military Service. Giardino. Titlepage.
70 Freezing Injuries and their Treatment with Thermal Mineral Water. S. Salvatore.—p. 897.

August 19, No. 66, pp. 905-919

71 *Treatment of Epidemic Meningitis. A. Indelli.—p. 907.
72 Hernia and Military Service. E. Villa.—p. 918.

71. **Epidemic Meningitis.**—Indelli comments on the disturbances liable to follow excessive dosage in serotherapy of cerebrospinal meningitis. He reports the details of three typical cases to illustrate the advantages of giving small fractioned daily doses of the antiserum, testing the patient's tolerance for it, and supplementing this direct local treatment by giving the antiserum intravenously or subcutaneously. This mixed treatment seems more logical and has proved more successful in his experience. The patients whose cases are described were a child of 7 and two girls of 17 and 19. Two left the hospital quite cured; the third is still being treated for a residual paresis of one leg. In this case the intraspinal serotherapy had been supplemented by intraspinal injection of a silver salt. This was followed by extreme general prostration, rise of temperature and purpura, evidently from the toxic action of the silver salt. The patient was left in peace for a few days after this except for stimulants to the heart and morphin to relieve pains in the legs and headache. Then the symptoms seemed to be growing worse, but no fluid could be obtained with lumbar puncture. Intramuscular injection of the silver salt was followed by some improvement. The disease thus progressed in waves, gradually growing less pronounced, and the fortieth day the condition was no longer regarded as grave, and the patient is now well on the way to health. It seems evident that the intraspinal silver salt was a factor in the transformation of this "open" into a "closed" form of meningitis.

Policlinico, Rome

September 2, XXIV, No. 36, pp. 1089-1120

73 *Tuberculosis from the Standpoint of Military Medicine. E. Maragliano.—p. 1089.
74 *Syphilitic Arthritis, Gastritis and Febrile Splenomegaly. C. Verdozzi.—p. 1095. Conclusion.
75 Iodized Benzene in Surgical Work. G. Zanetti.—p. 1099.

September, Medical Section No. 9, pp. 349-388

76 *The So-Called Nervous Reflex Phenomena in War Neurology. I. Valobra.—p. 349.
77 *Biologic and Curative Action of White and Colored Light. E. Milani and L. Cappelli.—p. 370.
78 Hyperindicanemia. A Fara.—p. 385. To be continued.

August, Surgical Section No. 8, pp. 313-352

79 *Technic for Amputations for Traumatic Lesions. G. Lerda.—p. 313. Continuation.
80 *Suture of Tendon Stumps over a Gap by Mobilizing their Attachment to the Bone. R. Mosti.—p. 332.
81 *Bone Production in the Kidney. (Ossificazione intrarenale.) E. Pirondini.—p. 339.
82 *Chronic Abscesses. (Neoformazioni flogistiche a decorso lentissimo.) G. Filardi.—p. 345.

73. **Tuberculosis from the Military Standpoint.**—Maragliano remarks that there seems to be a good deal of uncertainty among the army medical officers as to tuberculosis in relation to the military service. He declares that the only question should be, Has the man any kind of a tuberculous affection? If the answer is affirmative, then there is only one thing to do, the man should be eliminated from the army. Even when the man is well nourished, he is liable to have his precarious balance upset at any moment. Hence he cannot be utilized in any way in military service which is liable to be or become eventually harmful for him. No gradations are possible, he insists. No physician can authorize the retention of a tuberculous man; no one can guarantee that he has sufficient resisting powers to bear the depressing influence of military life either in the active zone or back of the firing line. The state and military authorities demand that no person with tuberculosis detectable by the diagnostic measures at our command shall be admitted to the military service. A circular issued by the minister of war, April 15, 1917, deplores the fact that men have been passed for the service with tuberculous lesions so serious and advanced that ordinary clinical examination should have revealed them. Certain physicians in examining the recruits are misled by their zeal to swell the army ranks, and they pass candidates who, they think, are capable of rendering good service even although they know that the men are tuberculous. But the nation and the government do not want this at all. Physicians should follow the lines laid down for those who are responsible for the make-up of the army. They should not restrict their search for tuberculosis to pulmonary lesions alone, as is too often done, but should seek for tuberculous affections of all kinds, however slight they may appear. This is a service which physicians can render now to the army. The benefit from it will be felt in the near future by the whole country. [Maragliano speaks with authority as he is not only one of the leading experts on tuberculosis but is also a senator of the realm, in close touch with the government.] He emphasizes that any focus of tubercle bacilli may and does remain circumscribed and occult as long as the resisting forces of the organism are able to oppose to them an adequate defense. But once the resisting powers are weakened by any cause, the bacilli throw down the barriers, and sally forth to conquer. Among the instructive diagnostic findings in case of a pulmonary lesion, he cites elastic fibers in the sputum and detection of antibodies in the blood and of tubercle bacilli in the urine. Latent tuberculosis of the kidneys is much more common than is generally believed. In dubious cases, roentgen examination is imperative, and subcutaneous injection of tuberculin, not less than 2 or 3 mg. if there are no broncho-alveolar foci. With an existing focus, 1 mg. or less is enough. The focal reaction should never be overlooked;

this may be as marked after taking 1 gm. of potassium iodid at one dose as after the tuberculin test. It should never be forgotten that tuberculosis proceeds *in stages, now* advancing, now stopping, as the defences grow stronger. The "clinical cure" means merely that the defence is stronger than the invading host and is holding it in check. If physicians at large appreciated this, they could surround the tuberculous with precautionary measures so that many of them could live on indefinitely. They should never be exposed to the vicissitudes of army life.

74. **Unusual Manifestations of Syphilis.**—Among the cases described by Verdozzi is that of a woman of 41 with an indolent tumefaction of the right knee. The bones showed erosions and deformity on roentgenoscopy, and a bloody fluid escaped on puncturing. No benefit was derived from a plaster cast or from administration of neosalvarsan and mercury. In two other cases the clinical picture of a gastric ulcer or cancer was accompanied by a strongly positive Wassermann reaction, and, under neosalvarsan, recovery from the syphilitic gastritis was soon complete. The last case described was that of a woman of 52 with great enlargement of the spleen, chills and intermittent fever, headache and general malaise, all continuing more or less constantly for two years. Then the spleen was removed, but the fever persisted unmodified until conditions were restored to practically normal by a course of neosalvarsan.

76. **Reflex Nervous Disturbances after War Wounds.**—Valobra summarizes the opinions of the different writers on this subject of disturbances observed in a limb after a wound that did not injure directly any of the nerves or vessels. He has had a number of such cases in his care and was impressed by the element suggesting a psychoneurosis and also an element for which the hospital care was responsible, namely, overlong immobilization. This not only helped to fasten the psychoneurosis element but it induced local changes, fastening the tendency to voluntary immobilization in the form of spasmodic contracture or voluntary inactivity. The clinical picture, as he has seen it, conforms in every detail to Babinski and Froment's description of reflex nervous trouble, but he does not agree with them in their explanation of it as something independent of external circumstances. He has found that it can be cured by physical measures associated with psychotherapy. Proper surveillance of the immobilization in these cases of minor wounds, not allowing the limb to be immobilized too long, will ward off all such disturbances in the majority of cases.

77. **Associated Phototherapy and Radiotherapy.**—Milani and Capelli review the results obtained during the last four years at the institute for electrotherapy and radiology connected with the University of Rome. They also describe considerable research on the biologic, bactericidal and curative action of white and different colored lights. In lupus, by far the best results were obtained with white light (including the greater part of the ultraviolet rays and all the light part of the spectrum), especially when supplemented by radium and the roentgen rays. For torpid war wounds, red light stimulated the granulations, while exuberant granulations seemed to be favorably modified with blue light.

79. **Technic for Amputation.**—This *instalment of* Lerda's long article has twenty-one illustrations showing the different technics required for different kinds of wounds of the limbs.

80. **Suture of Tendons and Ligaments Over a Gap.**—Mosti analyzes the various methods in vogue for bridging a gap between tendon and ligament stumps. In a case of which an illustrated description is given, there was an unbridgeable space between the stumps of the patellar ligament. The upper stump was mobilized by slitting the patella lengthwise and slipping the anterior half downward until it could be sutured to the lower stump. This technic proved completely successful. The halves of the patella were fastened together with a screw.

81. **Ossification in the Kidney.**—Pirondini does not know of any case on record similar to the one he describes in which a woman of 37 had been having occasional hematuria and pains in the right kidney region for a year and later in the left kidney, with pyuria. Roentgenoscopy confirmed the assumption of bilateral kidney disease, but the intensity of the pains on the left side compelled nephrotomy and a large calculus was extracted. The patient collapsed a few hours afterward and necropsy revealed in the right kidney a triangular bone, measuring 3 by 5 mm., protruding into a cavity filled with pus. The bone was complete, that is, it had periosteum and bone marrow, but no features of a tumor. It was evidently of embryonal origin or the result of the irritation from the inflammation.

82. **Chronic Abscesses.**—Filardi describes two cases of inflammatory new growths of extremely slow development which had led to the mistaken diagnosis of cancer. The tumors were mostly hard, with purulent fusion only at one small part. The tumor was in the abdomen in both cases; the patients were men of 26 and 72. The tumors had attracted attention for four years and three months, respectively, and both were permanently cured by clearing out the focus. There was a history of operative treatment for inguinal hernia not long before in each case, but in the younger man unsuspected appendicitis was probably the main factor. In both cases only the ordinary pyogenic germs were found, and they were of slight virulence.

Revista Critica di Clinica Medica, Florence

September 1, XVIII, No. 35, pp. 341-348

83 The Psychology and Responsibility of the Tuberculous. M. Maurizi.—p. 341. Commenced in No. 34, p. 333.

Prensa Medica Argentina, Buenos Aires

August 20, IV, No. 8, pp. 89-104

84 *Normal Beef Serum in Treatment of Anthrax. III. J. Penna, J. B. Cuenca and R. Kraus.—p. 91.
85 *Syphilitic Articular Rheumatism. P. M. Barlaro.—p. 93.
86 *Acute Anterior Poliomyelitis (Enfermedad de Heine Medin.) G. A. Alfaro.—p. 98.

84. ***Treatment of Anthrax with Normal Beef Serum.***—Penna, Cruenca and Kraus give illustrated descriptions of several cases out of their extensive experience with normal beef serum in treatment of human anthrax. [It was recently commented on editorially in The Journal, Sept. 29, 1917, p. 1085.] They now have a record of 140 patients thus treated, with the loss of only one, that is, a mortality of 0.71 per cent. Their latest series of ninety cases, justifies, they say, the exclusion of all doubt as to the efficacy of this treatment. At first they gave the injection intravenously, but found that the subcutaneous route is equally effectual except for the gravest cases. The dose ranged from 10 to 30 c.c. as the average, up to 40 and 50 in the most intense cases. The dose is repeated on the next and the following day at need. The serum is heated twice, and nothing has been observed to indicate production of serum sickness or allergy in any form such as is comparatively common with horse serum. In the nine severe cases described in detail, the desired result was attained with a single injection of from 20 to 30 c.c., with the exception of one case in which the anthrax pustule was on the neck. The first dose here was 50 c.c., and 30 c.c. was given later the same day on account of the alarming general symptoms.

85. **Syphilitic Articular Rheumatism.**—Barlaro says that in his experience he has found articular rheumatism of syphilitic origin more prevalent than that from tuberculosis and gonorrhea combined, and much more frequent than true acute febrile polyarticular rheumatism. . In some cases there is merely pain in the joints and functional weakness, the pains growing worse at night. As a rule the arthralgia comes on without preceding trouble, but sometimes there is a history of an acute infectious sore throat not long before. The temperature fluctuates irregularly and one or more joints may swell. In two cases described the pains developed acutely in throat, abdomen and knees in one, and in the right knee and left hand in the other, involving later the other knee and the ankles. The pain in this case was increased by movement of the joint, but there was no swelling or redness of any joint. In both cases mercurial treatment proved successful in gradually abolishing all disturbances and the general health improved. In another group of cases, of which the tempera-

ture charts are given, the joint trouble resembled deceptively ordinary febrile acute articular rheumatism. In these cases mercurial treatment only slowly conquered the joint trouble and fever, fully two months passing before the temperature was normal. In other cases the trouble was subacute and restricted to one or two joints, with brief acute exacerbations. He has also encountered chronic cases, and remarks that these are the cases of rheumatism which used to be cured empirically by mercury. Modern science has demonstrated that many forms of chronic rheumatism, from the monoarticular to deforming arthritis and rhizomelic spondylitis may yield to thorough treatment as for syphilis. In one such case the woman had a history of syphilis contracted a year or two before. The "rheumatism" developed with chills, fever and swelling and redness of the joints, especially the small joints of the hands. Under mercurial treatment the fever was aggravated at first but then declined. The clinical picture of chronic deforming rheumatism then developed with deformity of the fingers and contracture, rheumatism of the neurotrophic type, and she grew weaker and weaker. By the end of the month the dose of mercury was doubled, after which the gravest symptoms gradually subsided. The first and gravest phase lasted for seven months, comprising two severe and two minor attacks. Then under continuous mercurial treatment the woman recuperated and is now free from pain and in good condition except for the deformed fingers and feet. He cites some other cases of this tenacious form with its waves of acute exacerbation. A special feature of nearly all the cases was the greater intensity of the pains at night. There is a possibility that the peculiar tenacity of some of these cases is due to the fact that it is ordinary rheumatism occurring in a syphilitic.

86. **Poliomyelitis.**—Alfaro relates that up to 1909 acute anterior poliomyelitis at Buenos Aires had occurred only sporadically, but in that year and since the cases have been more frequent, without ever assuming actual epidemic form or special gravity. In Montevideo and vicinity last year there were about sixty cases but all were mild. He has himself encountered at Buenos Aires sixty cases during these recent years but has never seen or known directly of a case of contagion, nor been able to trace the cases through a carrier to the source. Hence he does not approve of the excessively severe prophylactic measures which some have wished to introduce in Argentina. In one instance the three children of a family developed the disease all together, with only a few hours' interval, the clinical picture suggesting influenza. One child had merely fever, prostration and mild catarrhal symptoms, soon subsiding, but in the others intense meningeal symptoms followed, to which one child of 2 rapidly succumbed while the other, a boy of 6, lay comatose for several days and then the paralyses permitted a retrospective diagnosis of the familial epidemic. The lumbar puncture fluid in both cases showed merely slight albumin content and lymphocytosis, with no bacteria. In one other case this meningeal form proved fatal from ascending paralysis. In all his other cases the patients recovered. The differential diagnosis was by exclusion and the leukopeny. The paralysis during the disease affected the legs in 75 per cent. but in some cases the muscles of the neck and trunk were involved and in one case there was eventration from the paralytic atrophy of the rectus muscle. In another there was acute incoordination of the movements of the trunk and limbs for a time. He noted the painful type in several cases, and Morquio of Montevideo reports that this type formed 70 per cent. of his cases; Marie denies the existence of this type. In one of Alfaro's cases the pain was so intense in one thigh and the contracture so severe that acute coxalgia was suspected at first, until the consecutive paralysis, pronounced atrophy and loss of the reflexes indicated its true nature. The incomplete and abortive cases must be watched for with care as they spread the disease. He had only two deaths in his sixty cases but almost all the patients, with one exception, were left with persisting paralysis. In four cases he gave intraspinal injections of serum from convalescents; the results seemed brilliant in one case but were disappointing in the others.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 21, II, No. 3, pp. 205-268

87 Modern Spiritualism. (Het hedendaagsch spiritisme.) G. van Rijnberk.—p. 205.
88 *Diathermy in Treatment of Gonorrheal Ophthalmia. J. E. L. Kraft and G. ten Doesschate.—p. 214.
89 *Pathogenesis of Tetany. G. C. Bolten.—p. 218.
90 Cooperation Between Physician and Dentist. C. van der Hoeven. p. 236.
91 Meningococcus Meningitis in a Child. W. A. Weisfelt.—p. 240.

88. **Diathermy for Gonorrheal Ophthalmia.**—Kraft and ten Doesschate relate that excellent results have been reported in various quarters from the use of diathermy, electric thermopenetration, in treatment of various eye affections, including traumatic iridocyclitis, rheumatic scleritis, chronic uveitis, trachoma, vernal conjunctivitis and above all in parenchymatous keratitis. They have tried it themselves in chronic iridocyclitis, tuberculous keratitis and gonococcus eye affections. No benefit was apparent in the two first named, but in the gonorrheal ophthalmia the results were gratifying. The action of the diathermy seems to be exclusively that of heat. The heat being generated within the tissues reaches a higher degree than is possible to attain with compresses, cataplasms, etc., the benefit from which has long been an established fact. With high temperatures we attack the gonococcus on its weakest side, as it is well known that it is killed off by comparatively low temperatures. Bumm found that at 38 C., long kept up, the gonococci lost the power of reproduction. Cases are on record in which gonorrheal ophthalmia was promptly cured by application of steam. Experiments on rabbits have apparently shown that their eyes can stand the application of direct heat to 45 C. without harm.

With diathermy it is possible to reach a temperature of 42.5 C. in the conjunctiva, as can be measured by a mercury thermometer made to fit into the culdesac, the scale projecting between the lids. The temperature can also be determined from a needle introduced into the conjunctival fold, but these measures are liable to do harm. The patient's sensation as to the heat is enough of a guide. The electrode was made to fit over the eyeball; the other electrode was placed at the back of the neck. The fat and bone around the eyeball are bad conductors, so that the heat generated is retained in the eyeball, and it is retained most in the tissues which offer the most resistance to the electric current, namely, the cornea and sclerotic. The success in the first case in which they tried the diathermy was so striking that they looked eagerly for another case of gonorrheal ophthalmia, but two years passed before they encountered one among the usual run of gonococcus urethritis cases. Two hours after the first application of the diathermy for fifteen minutes, no further gonococci could be found in the secretions in the eye recently involved in the ophthalmia. Some were still found in the older process in the other eye, but they gradually disappeared and vanished completely by the tenth day. The third and last case in their experience was less satisfactory; there was already an ulcer on the cornea when first seen, and the skin of the eyelids was macerated by preceding local application of potassium permanganate and silver salt solutions. It had been rendered so sensitive that effectual diathermy could not be systematically applied, but even under its partial use the gonococci finally vanished.

89. **Pathogenesis of Tetany.**—Bolten describes the case of a young man with tetany, and then devotes the rest of his long article to discussion of the pathogenesis of tetany, as he does not believe that the parathyroids are directly responsible for more than a certain proportion of the cases. He further disagrees with those who take tetany in children lightly; he cites figures showing that complete recovery followed in only about 20 per cent. He ascribes tetany to a "spinal intoxication." When this is the work of toxic action from the parathyroids, the outlook may be grave. The tetany following removal of the parathyroids, he reiterates, is seldom or never overcome, but when the parathyroid insufficiency is only partial or transient, then the tetany may subside. In the nonparathyroid cases the toxic action on the spinal cord is usually transient, and the resulting tetany is benign, as in workman's tetany, tetany with various infectious diseases,

and with stomach or bowel trouble. The fact that workman's tetany is liable to recurrence is due to the action of the cause inducing it in the first place, especially the eating of bread made from grain containing ergot. He does not believe that there is any specific tetany poison; any poison casually acting on the spinal cord is liable to bring on tetany. In the case described in detail, the young man seemed to have a chronic, latent tetany which flared up under autointoxication from constipation, and subsided again as the bowel functioning became regular again. There was a tendency to cataract in one eye from childhood and to infantilism and defects in the enamel of the teeth—all of which Bolten regards as manifestations of the tetany of parathyroid toxin origin. They have never been observed with tetany following complete removal of the parathyroids. He explains the case, therefore, as an old chronic parathyroid tetany which keeps constantly latent until fanned into a flame by some occasional other factor, and which subsides into latency again as this factor is eliminated. He quotes from most of the recent literature on tetany but gives no bibliographic references.

Hospitalstidende, Copenhagen

August 1, LX, No. 31, pp 741-764

92 *Thyroidism after Roentgen Treatment; Two Cases. P. Verning. —p. 741.

92. **Death After Roentgen Treatment of Exophthalmic Goiter.**—Verning reports two cases, with only a few weeks' interval, in which the vascular, recently developed goiter was given Roentgen treatment, and fatal thyroidism followed. One patient was a woman of 26; the symptoms of the exophthalmic goiter became manifest two months after delivery of her first child. She had always been nervous, and two years before had had febrile articular rheumatism, with complications on the part of the heart. The thyroid was exposed to the roentgen ray, the dose 5 H, filtered, and the exposure was repeated the next day. The circumference of the neck subsided from 36½ to 34½ in a few days, but the tremor and agitation increased to actual delirium, and the woman died fifteen days after the last exposure, a little over two months after the first signs of the exophthalmic goiter. The other patient was a housemaid of 18 with no pathologic antecedents except one slight attack of gastric catarrh and chlorosis. For the last year she had been easily tired and nervous, with a tendency to occasional palpitations and shortness of breath. She entered the hospital a month after she noticed that her neck had begun to enlarge a little. Two roentgen exposures were given with the same dose as in the other case, only with a two-day interval. Symptoms of mild thyroidism developed as the circumference of the neck became reduced from 34 to 30.5. Later the thyroid symptoms became aggravated, and the girl died about six weeks after the exposures. A mild intercurrent infectious sore throat may have been a factor in the fatal outcome. The dosage of the rays was not above the average, but must have been excessive for such recently developed cases. Verning summarizes in conclusion the cases he has found on record in which, under roentgen treatment, the symptoms became aggravated. As a rule, however, this aggravation was transient, and the result on the whole was improvement.

Hygiea, Stockholm

July 31, LXXIX, No. 14, pp. 689-736

93 *Prolapse of the Umbilical Cord. A. Nordlund.—p. 689.
94 *Circumscribed Phlegmonous Gastritis Simulating a Tumor. Sten von Stapelmohr.—p. 708.

93. **Prolapse of the Umbilical Cord.**—Nordlund's statistics emphasize the danger from attempts to reduce the prolapsed cord. The mortality in the reduction cases was 30.2 per cent., but in reality it was still higher, as reduction had been attempted first in some of the version cases. So the version alone was not responsible for all of the mortality of 27.4 per cent. in the version with extraction cases. The total number of cases of prolapse of the umbilical cord was 5.3 per cent. of the 62,316 deliveries at the Stockholm maternity since 1850. In these prolapse cases, 38 per cent. of the infants were much below and 32 per cent. much above the average weight. The mortality in the total 333 cases was about 30.9 per cent. He gives tables of the different data as compared with those from other maternities. In not less than 52 of the 333 cases, the prolapse followed some operative intervention, and in 9 it was increased by the intervention. Attempts to reduce the prolapsed cord were made in 104 cases, but failed in 67, and 32 of the children in the latter group died. His conclusion is that in case of prolapse of the umbilical cord, extraction should follow at once, with or without version. The risk from attempted reposition of the cord is shown plainly by the data presented. While waiting for the os to dilate, the woman should be kept in the Trendelenburg position.

94. **Circumscribed Phlegmonous Gastritis.**—Stapelmohr published last year three cases of diffuse phlegmonous gastritis, and he now reports two cases in which the trouble was limited to the pylorus region. This area was resected, but instead of the supposed cancer the microscope showed merely phlegmonous gastritis. One patient was a man of 59, and the trouble began with fever and vomiting, the laparotomy following in less than three weeks. The other patient was a woman of 33, and there had been symptoms from the stomach for three years. The Wassermann test gave a positive response. Both patients were apparently cured by the operation. There were evidences of a chronic hyperplastic gastritis in the second case and in both cases there was pronounced leukocytosis. This latter might aid in differentiation.

Ugeskrift for Læger, Copenhagen

July 26, LXXIX, No. 30, pp. 1233-1286

95 *Diagnosis of Pregnancy. J. Kaarsberg.—p. 1233.
96 *The Coarse Bread Question. M. Hindhede.—p. 1248.

95. **Diagnosis of Pregnancy.**—Kaarsberg declares that he has been unable to find on record a single authentic case of actual menstruation during a pregnancy, not even in cases of double uterus. The changes in consistency in certain areas are instructive signs of pregnancy, even in the early stages. He has sought regularly for Lobhardt's "livid stripe," running from the mouth of the urethra past the relics of the hymen, but has found it in only three cases. The Abderhalden test seems to exclude pregnancy when the response is negative, but a positive reaction is not conclusive. Hegar's sign is the softer consistency of the uterus, so that it can be pressed in with the fingers above the cervix until the fingers almost meet. But Kaarsberg has never encountered this but once in his experience. A softer consistency of the uterus in the cornua is comparatively common, and very instructive, even early in the pregnancy. Veterinarians count on this in examining cows to learn if they are gravid. The cornu is easily palpated through the rectum. He regards this as more instructive than changes in the size and shape of the uterus in the first three months. In a case of pregnancy in the cornu with an eccentric growth, he operated for assumed tubal pregnancy but found the three months' ovum normally embedded. Such a mistake can be avoided by finding on palpation both cornua equally well defined. Interstitial pregnancy is often accompanied with attacks of severe pain.

In discussing the complications of pregnancy, he remarks that he has never seen but one instance of incarceration of the gravid, retroflexed uterus. The fear of incarceration therefore need not be great; the patient can be warned to apply for help if there is difficulty in voiding urine. Restoration of the uterus to place is liable to entail abortion. There can be no incarceration of the fully retroflexed gravid uterus without the cervix being drawn up and back of the symphysis. This usually squeezes the lower walls of the bladder together and impedes its emptying, but this is not always the case. Conditions are often misleading with a double uterus, the palpation findings suggesting a tumor or extra-uterine pregnancy. In conclusion he presents evidence that the condition called "supravaginal hypertrophy of the cervix" of the gravid uterus is in reality torsion of the uterus with an ovum embedded in a cornu.

96. **White or Whole Grain Bread.**—Hindhede replies to recent criticism of his research on foods and dietaries. It has been objected that the two men, the subjects of his experiments, had such unusually good digestion that conclusions from them, particularly in respect to digestion of bran, cannot apply to average persons.

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THE NEW PUBLIC HEALTH *

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My ambitious subject, the new public health, is not of my own choosing. A recent book has been devoted to a discussion of this subject. In attempting to deal with a subject of such vast proportions in the short period of time at my disposal, I shall be compelled to limit myself to brief references to those recent changes in point of view, new interests, and new proposals which seem to offer the biggest rewards for any attention that may be given to them.

GROSS AND ANALYTIC CONCEPTIONS OF THE HEALTH PROBLEM

Our former rather gross conception of the health problem is becoming more exact, more analytic. We are learning that the health problem has an anatomy; it can be cut up, dissected into a number of independent, smaller health problems or health units. The treatment one prescribes is profoundly influenced by one's point of view. It depends, namely, on whether one has the gross or the anatomic conception of the health problem. With the gross conception one prescribes general treatment and uses the shotgun prescription. His treatment is like the treatment of one who prescribes a physician for the sick, for he prescribes a health office or health officer for the health problem; as, for example, a national department of health for the national health problem, and a whole-time county health officer for the county health problem. With the anatomic conception one prescribes specific treatment, a definite plan for each separate health unit. The health officer with an exact conception of the health problem in treating a sick social organism does not put all of the treatment in one prescription, realizing that in aiming at everything he may hit nothing, and incidentally turn his patient's stomach. Today is the day of specific therapeutics, both for the individual and for the public. Specific therapeutics demands exact knowledge.

FEDERAL, STATE AND COUNTY COOPERATION IN FINANCING AND PLANNING RURAL HEALTH WORK

Two departments of the national government, those of agriculture and of commerce, have established a plan of financial and supervisory participation with state and county governments in local or county work in which all three participating governments have a common interest. Under this plan the federal government makes an initial appropriation of from $4,000,000 to $25,000,000 annually. This appropriation is apportioned to the states on the basis of population and square mile area, and each state apportionment becomes available when the state appropriates an equal sum. The state, in its turn, apportions the combined federal and state funds to those counties that will appropriate a supplementary fund, the amount of which the state determines. Note that all the appropriations, federal, state and county, are conditioned and are available for use only when two other appropriations are made. Such appropriations are comparatively easy to secure, one of the three contributors inducing the other two to contribute. In addition to providing funds for local work in which all three governments have a common interest, this plan offers another great advantage: before any county can receive state or federal aid, its plan of work must be approved by both state and federal participants. In this way the federal government and the state government become clearing houses of experience in formulating and directing local work.

This principle of governmental cooperation which the Department of Agriculture and the Department of Commerce have established for county agricultural work and county highway construction should be quickly extended to include county health work. A federal appropriation of a million dollars annually for rural health work, to be apportioned among the states on a basis of rural population and square mile area, and made available to the state appropriating a like sum, would give the average state $40,000 annually for rural health work. Then if the state apportioned the $40,000 to those counties that would match the combined federal and state fund dollar for dollar, the total fund in the state for rural health work would amount to $80,000 annually. Moreover, the conditions of the apportionments, in requiring the plan of rural health work to be approved by all three participating governments, would insure the highest degree of efficiency. In a recent conference of secretaries of state and provincial boards of health, appropriate steps were taken to secure from Congress the extension of the plan of financial and supervisory cooperation of governments to include, in addition to agriculture and good roads, rural health work.

INDUSTRIAL HYGIENE

Countries epitomize the course of civilization in being first agricultural and then, with an accumulation of raw products, becoming industrial. Our country is rapidly becoming an industrial nation. Multiplication of industries means that competition is sharpened by every new wheel that turns. Competition demands the elimination of waste.

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Waste in industry results (1) from defective machinery, and (2) from defective manipulation of machinery. The successful industrial captain demands that only the best machinery be installed, that it be kept clean, polished, well lubricated, screws and bolts tight, belts well adjusted, and in every way physically fit. He does more. He looks beyond the machine and finds that a physically efficient machine in the hands of a physically inefficient operator means waste. He finds that from 40 to 50 per cent. of employees are sick or abnormal some time during the year. He finds that each abnormality, total incapacitation, is preceded and followed by subnormality, partial incapacitation, of from two to three weeks' duration; in short, he finds that the average worker is partially and completely incapacitated for about one twelfth of his time. He finds that accidents to both men and machines occur usually to those men and machines that are physically either subnormal or abnormal. He finds that the product of a machine suffers quantitatively and qualitatively when the machine stands idle as a result of an abnormal operator, or when the machine is under the manipulation of a subnormal operator, and so the need, the demand for industrial hygiene gains new strength almost daily. In supplying this demand, the great need is a carefully devised, detailed plan of industrial hygiene built up in units and made thereby adaptable to the more important industries of varying capitalization.

IMPROVEMENT IN PUBLIC HEALTH THROUGH ADVANCES IN PRACTICE OF MEDICINE

The medical profession conceived public health, fed the embryo from its own blood, brought forth the mature infant, which, though vigorous and promising, is even yet dependent on its mother's breast. Anything that strengthens the mother helps the child. In this country recently three proposals, health insurance, group practice, and a plan for more generally available postgraduate courses for physicians, have been put forward for the purpose of advancing public health by improving the practice of medicine. The first two of these proposals, health insurance and group practice, are being well cared for by able men.

Organized medicine has taken a deep interest in medical education, as medical education applies to the physicians of tomorrow; but in its solicitude for the undergraduate it has apparently forgotten the postgraduate, the present field force of something like a hundred thousand physicians. Modern governments do not appropriate money for road construction without providing in the act for the maintenance of the roads constructed. The solidarity of the medical profession depends on two conditions: (1) its construction, and (2) its repairs. The repair shops of medicine are sorely inadequate, and with a very few exceptions those that exist are not organized with proper consideration for the convenience of the men who should use them.

Eighty per cent. of the general practitioners get little or no postgraduate work. Their income is small, around $1,500 to $1,800 a year. They have family responsibilities, current expenses and insurance. The present cost of postgraduate work is in excess of what the general practitioner can pay. To make postgraduate work more generally available, one of two things must be done: either the income of the profession must be increased or the cost of postgraduate work must be decreased. In order to decrease the cost of postgraduate work, let us analyze its budget. Let us suppose, for illustration, that seventy-five physicians take a postgraduate course of six weeks in diseases of children under a capable assistant professor in one of our larger medical schools. The teacher has graduated three or four years previously, is an exceptionally well qualified man, and is one of the best of the younger men in the active teaching force. Let us assume that the physicians taking this course collect $150 a month from their practices. The individual expense account then will be:

Absence from practice six weeks	$225
Tuition six weeks postgraduate	100
Traveling, board and incidentals	75
	$400

For the entire class of seventy-five men, the cost will be seventy-five times $400, or $30,000.

Now let us suppose that we reverse the transportation process: Instead of moving seventy-five men away from their practice to one man, the teacher, let us move the teacher to the seventy-five men, leaving the men at work in their practices during their postgraduate courses. The seventy-five doctors can be grouped into six sections of from twelve to thirteen men. The sections can be so located with reference to each other that the teacher can meet Section 1 on Monday for an hour's lecture and two hours' clinic, travel a distance of from 20 to 30 miles, meet Section 2 on Tuesday for three hours' work, and so on, Section 3 on Wednesday, Section 4 on Thursday, Section 5 on Friday, and Section 6 on Saturday; and with the sections arranged on a circuit the teacher would be, on completing his week's work on Saturday with Section 6, within one hour of Section 1; with which on Monday he would begin again his weekly cycle. In a three months' course each section and each member of the class would receive twelve hours of lectures and twenty-four hours of clinics; or in a four months' course, sixteen hours of lectures and thirty-two hours of clinics. If we pay the teacher $600 a month for a four months' course, the teacher will receive $2,400; if we pay the teacher $800 a month for a three months' course, the teacher will receive $2,400, which is not bad pay, at least from the point of view of the general practitioner. If we allow an additional $600 for other costs, such as laboratory material, stenographic reports of lectures, etc., the total cost of the course to the entire class will be $3,000, which will be agreed on in advance and raised by assessments of $40 for each member of the class. The amount of clinical material needed can be prorated among the members of the class, who can furnish this material from their practices. The state university, the state board of health, or some other state agency of standing should assume responsibility and direction of the course. If the university should assume direction of the course, academic credits could be issued to those who satisfactorily complete the course.

There are only four elements that enter into postgraduate work: (1) a class room, (2) a class of from eight to fifteen physicians, (3) a qualified teacher, and (4) clinical material. In times past this combination could be effected in only a few large cities; but times change, conditions and environment change, and men, except the aged that have lost their adaptability, change. Improved railway facilities, excellent highways, the automobile, denser populations with more abundant clinical material, increase in number of physicians and decrease in space separating them, are factors that could be and should be utilized in the repair of the medical profession, in bringing mental sustenance to the men in the trenches, instead of sending them far back to a few base kitchens.

THE NEW IDEAL: VITAL QUALITY

In health work the old ideal was quantitative — more life, lower death rates, greater longevity. The new ideal will be qualitative — greater human efficiency, a better quality of being.

There was a time when mere quantity of service counted for more than it does today. Then we had a work day of twelve hours and a school day of eight or nine hours. Now we know that a man's ability to produce and a child's ability to learn is greater with an eight hour work day and a five hour school day than with the former longer hours. The time may come when we shall find that a life adjusted to a fifty year time table makes greater mileage on the energy consumed than does a life adjusted to a seventy year time table.

Quantity of life and quality of life are related, but are not identical. If we provide for quantity we do not necessarily insure quality. If, on the other hand, we provide for quality of being, we take care of quantity so far as it deserves to be cared for. With the old ideal of vital quantity, those diseases that have large mortalities and high degrees of preventability tended to absorb our thought and energy. With the new ideal of vital quality, we shall be not less mindful of those diseases that directly affect vital quantity, but we shall be more mindful of those diseases that play havoc with vital quality. The light hookworm infection; twenty to fifty parasites; the neutral malarial infection; the chronic suppurating gums; the chronic constipation; the grumbling gallstones; the nagging piles; the old, slightly lacerated cervix; the improperly balanced ration; the excess of nicotin; the improperly ordered schedule of rest and play and work; these, and their like, gage the severity of their attack on vitality by what the vital forces will tolerate without striking back. These, like the small tax gradually increased over long years, take from a careless people a total of efficiency, of vital quality, of life, that, could we but compare it with our account against tuberculosis, typhoid fever, and their like, would make the last named diseases appear of far less relative importance. Our vital losses, like our financial losses, are in driblets, pennies, nickles, dimes, an occasional quarter. If these little drafts on efficiency, on vital quality, the individual items too small to add from day to day, were totaled at will-making time, our conception of the relative importance of diseases would undergo a rather remarkable revision. Periodic examination of adults, as carried out by the Life Extension Institute; medical inspection of schoolchildren; school lunches; the accentuation of the fight on diseases that cripple rather than kill, hookworm and malaria; the oral hygiene movement; the mental hygiene movement; the propaganda of the eugenist; the increased interest in the regulation of working hours, in dietetics, are all aimed not primarily at death rate reduction and longevity extension, quantity, but at the new ideal, a finer quality of being. For

> We live in deeds, not years; in thoughts, not breaths;
> In feelings, not in figures on a dial;
> We should count time by heart throbs. He most lives
> Who thinks most, feels the noblest, acts the best.

ABSTRACT OF DISCUSSION

Dr. H. M. Bracken, Minneapolis: Dr. Rankin has given us a most interesting paper, illustrating the work that is already being done in North Carolina relative to (1) organization of county boards of health, and (2) postgraduate teaching. Both of these are of the greatest importance. Dr. Rankin is to be congratulated on what he has been able to do, as well as on the able way in which he has presented his subject. It is to be hoped that others may follow his example. The plan which he has developed for postgraduate work is unique, but seems to be efficient.

Dr. W. C. Rucker, Washington, D. C.: Last year at Cincinnati I defined health as the physiologic function of the community. This caused a little smile to ripple over the face of things; but, after hearing this paper, I am convinced more than ever that this definition is correct, and that health is the physiologic functioning of the community. In our health teaching heretofore we have taken the wrong course, the illogical way, of going about it. We have reasoned from the pathologic to the physiologic instead of taking the point of view that the normal is the physiologic.

Judged in that way, we get far away from the idea that the whole problem is a communicable disease problem, and realize that it is a community problem. In this problem we must recognize two sets of workers: the general practitioner and the group of people whose practice is limited to public health work, or sanitation.

This gives us an opportunity to give different sorts of training. We should give the same basic training to all; but to the man whose practice is to be limited to sanitation, we should give intensive training along certain definite lines, developing each man according to his special capabilities for special lines of work. With regard to the school curriculum, to the postgraduate course, it seems to me that there is one psychologic factor that should be borne in mind, and that is that when men gather together in a new environment for the purpose of accomplishing something, they can do that something better than they could in their normal environment.

Dr. Haven Emerson, New York: In paying tribute to Dr. Rankin's admirable conception of the opportunities that await postgraduate education in public health matters, I wish to emphasize the fact that failure of the practitioner at present is due to the failure of medical schools to appreciate that the teaching of diagnosis and care of the individual is not the sum of their responsibility to their students. Rarely is a student's attention called to his responsibilities to the community in fulfilling his obligations to patients. There is no reason why the local health officer should not play a part in the postgraduate teaching of clinicians and physicians just graduated from hospitals.

We are now in the presence of the phase of public health work which recognizes that the habits of the community, and the education in personal hygiene of the individual will be the determining factor in further improvement of public health. Health officers must become teachers, so that the people will know how, when they are healthy, to keep healthy. They must spread the newer knowledge of physiology; the knowledge that alcohol is not a stimulant but a depressant; the knowledge that the best preventive against venereal disease is personal continence, and the knowledge that continence is compatible with health. I believe that we could proceed in this matter without waiting for governmental appropriation, and that it needs merely cooperative organization between existing medical schools and the health officers, in order to put into effect a program for postgraduate public health instruction of clinicians.

Ultimately, this teaching work should be paid for by government subsidy or by the medical school, but volunteers could doubtless be obtained to put the plan into operation, with confidence that support would come as its value was recognized.

Dr. Arthur T. McCormack, Bowling Green, Ky.: Dr. Rankin has put into practice plans and thoughts which have suggested themselves in part to many of his fellow workers. He has actually done what others have dreamed of. Congress at its last session made an appropriation of $150,000 to be used for cooperative work with the states, on the dollar for dollar basis, in rural sanitation. To my mind this really activates the United States Public Health Service; and, regardless of whether we have a cabinet officer now or later, it gives us a federal health service that will be enabled to standardize county health departments so far as this is possible. A county which expends $5,000 annually on its health department will now be able to secure a sanitary survey of every home and individual in its borders by trained medical officers. Such a health inventory will enable the health officer and his corps to know what problems should be solved first and to adopt a compresensive, economical plan for such solution. Such a survey will do more for the education of all the people of a county than can be accomplished in a generation by other means. The careful sanitarian, made practical by experience, who goes to the home and takes up the details of ordinary life, answers questions, and tactfully points out defects and at the same time demonstrates the remedies for these defects, is the real apostle of health.

Dr. Rankin emphasizes the evolution going on in all of us, and Dr. Emerson well says that the local health department must concern itself with every single thing that goes to make a better citizen for that community. It was but recently that we all felt that an all-time health officer was the "ultima Thule" of our desires. Before we have secured him, we know that, alone, the most devoted all-time health officer will, in many counties, be wholly inadequate. What we must have is an all-time county health department, with such force and such allies as are necessary to prevent sickness and restore those who are inefficient.

EXPERIMENTAL SHOCK *

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In view of the desirability of prompt publication of results in this field, as indicated recently by Pike,[1] a summary of work conducted by the staff members of this department and extending over a number of years[2] is deemed timely.

The general plan was to devise a reliable and comparatively simple method of producing shock; to establish definite criteria for recognizing the condition and to observe and study (quantitatively when possible), at frequent intervals throughout the experiment, as many phenomena simultaneously as was feasible, for we were proceeding on the assumption that the grosser manifestations of shock are to be considered effects rather than causes. Accordingly, if the causative mechanism was to be observed, it would be most desirable to study minutely the phenomena immediately preceding, during and following the application of the means used for producing shock, and to observe the effects of such therapeutic measures as might be indicated by the results.

Such experiments were made on twenty-two dogs. The studies comprised blood pressure; pulse rate and character; vasomotor reflex response; vasomotor tone; respiration rate, amplitude and regularity; volume and composition of expired air; blood hydrogen-ion concentration, reserve alkalinity, hematocrit and hemoglobin tests, red cell count and specific gravity determinations (from which alterations in the composition of the blood, as regards relative volumes of plasma and corpuscles, as well as estimations of relative changes in total volume of blood, were made); estimation of the total blood contained in the vessels of the alimentary canal and in the vessels of the liver; viscosity and depression of the freezing point of blood, and temperature and condition of the general reflexes (eye, knee, etc.). Comparative studies were made on conditions observed in shock, and conditions following induction of cerebral anemia. The effects of remedial measures were observed, as mechanical increase of cerebral pressure, by occluding the aorta; elevation of the posterior portion of the animal to facilitate return of blood to the heart, and administration of drugs, including epinephrin, tyramin, atropin, sodium bicarbonate, lactic acid, and inhalation of carbon dioxid.

METHOD OF EXPERIMENTATION

After such observations had been made as were possible on the unanesthetized animal (condition, general behavior, pulse and respiration), it was quickly reduced with ether to a state of surgical anesthesia, and operated on. A trachea tube was inserted and connected with an ether bottle provided with valves. Connections were provided for collecting expired air samples for analysis. A mercury manometer was connected with one carotid artery for recording blood pressure. Blood samples were obtained by means of a cannula inserted into a carotid or a femoral artery.

After the taking of observations, including tracings and samples of air and blood to establish the condition under ether only, the brachial plexus on one or both sides was exposed, ligated and cut peripheral to the ligature and further stimulated by traction, or crushing with forceps, and by tetanizing electric currents. One or both sciatic nerves were prepared for stimulation chiefly to observe vasomotor reflex response. Unless pronounced symptoms of shock were soon induced, one or both of the fore limbs were about three fourths amputated, or the abdominal cavity was opened by a median incision and the intestines exposed and manipulated. The rectal temperature was taken at intervals. Ether was discontinued as early as possible, but was readministered, if indicated, to prevent return of conscious sensibility. Cerebral anemia was induced by the occlusion of appropriate arteries.[3]

RESULTS

Circulation.—Blood Pressure: This showed marked variations under experimental procedures. With pronounced evidences of shock, there was always low blood pressure. Usually, when below 70 to 50 mm. under ether, a tendency to recover was absent, but on removal of the ether, recovery was prone to take place, while from levels between 50 and 40 mm., the tendency to recover on removal of ether was feeble or absent. From the 50 to 40 mm. level, in general, the tendency of the blood pressure was gradual decline, but the rate of decline varied in different animals.

In pronounced shock, tying the portal vein, or tying the vein and the arteries supplying the alimentary canal and liver, had small effect on the blood pressure. Elevating the posterior trunk in such conditions caused a marked rise in blood pressure, and the effect was not materially lessened if, prior to elevation, the portal vein was ligated.

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[1] Pike, F. H.: The Relation of Low Blood Pressure to a Fatal Termination in Traumatic Shock, The Journal A. M. A., June 23, 1917, p. 1892. (Discussion of references does not come within the scope of this communication, but some are included for the convenience of the reader, who may desire to refer to other literature.)

[2] Guthrie and Guthrie: Proc. Soc. Exper. Biol. and Med., 1914, **11**, 148.

[3] Stewart, Guthrie, Burns and Pike: Jour. Exper. Med., 1906, **8**, 289.

Pulse, Rate and Character: The pulse in general varied with the blood pressure, and as pressure declined, the total effect on the pulse rate was a decrease as compared to the stage under ether only. There was no pronounced evidence of vagus inhibition.

As indicated by the manometer tracing, the character of the pulse showed variations associated, as a rule, with pressure changes and due, it is believed, to a large extent to mechanical alterations, as the blood supply to the heart, changes in peripheral resistance, and rate of heart. The pulse became weaker with lower pressures with a noticeable tendency, as compared to the stage under ether only, to become slower.

Vasomotor Reflexes: Reflex vasomotor augmentation varied in different experiments and also in the same experiment. In some instances it was diminished, and in others it was more pronounced in the lower stages of blood pressure. Its occasional absence may have been due to the ether factor. Under strong brachial nerve stimulation, augmentation was followed usually by diminution of blood pressure.[4] The diminution, too, varied in different experiments, and in different stages of the same experiment.

Vasomotor Tone: The vasomotor tone results were pronounced. For example, in one experiment under ether only, division of the sciatic nerve increased the blood flow from the femoral vein 22 per cent., while after shock in the same animal, the increase amounted to 76 per cent. In another experiment, the increase in shock after division of the nerve was 77 per cent. Hence, it would seem that vasomotor tone was present in the limb in shock, which confirms again the findings of Seelig and Lyon.[5]

Blood.—Reaction: The hydrogen-ion concentration of the blood showed a tendency to increase. For example, in one experiment, before shock the hydrogen-ion concentration was 7.2, and after shock 7.1, and in the final stages 7.0. In another experiment, under light ether only, it was 7.2, and under deep ether only, 7.0, and after shocking the animal it remained at 7.0. It would seem, therefore, very important to consider the anesthetic factor in interpreting such results.

Reserve alkalinity seemed to bear a closer relation to shock than hydrogen-ion concentration. In one experiment, reserve alkalinity decreased from 8.0 to 7.8 in the early stage of pronounced shock, and as the degree of shock increased, reserve alkalinity decreased to 7.1. In this experiment, reserve alkalinity before shock was 8.0, in pronounced shock 7.3, and in the very late stages 7.1. The hydrogen-ion concentration in this experiment increased from 7.2 to 7.0.

Hydrogen-ion concentration determinations were made by the Levy, Rowntree and Marriott method,[6] and reserve alkalinity by Marriott's method.[7] The figures obtained are taken as showing relative rather than absolute values.

Hematocrit, Hemoglobin, Red Cell Count and Specific Gravity: The relative volume of corpuscles (by hematocrit and by gravity sedimentation) hemoglobin (by Duboscq colorimeter method), number of red blood corpuscles per cubic millimeter, and specific gravity (by weighing) all showed a moderate progressive decrease. In a typical experiment, the hematocrit reading decreased from 64 per cent. before shock to 56 in the later stages; the hemoglobin, from 100 per cent. to 80.9 per cent.; the red cell count showed a decrease of about 25 per cent.; the specific gravity, from 1.068 to 1.062.[8]

Relative Blood Volume: As estimated from hematocrit, hemoglobin, red cell count and specific gravity results, there was a progressive increase in relative blood volume.[9] In the experiment quoted in the preceding paragraph, the following figures were obtained: volume of blood before shock, 100 per cent.; volume of blood in profound shock as estimated by hematocrit, 114 per cent.; by hemoglobin, 124 per cent., and by specific gravity, 119 per cent.

Distribution: In profound shock, the veins and the arteries of the alimentary canal, including those of the stomach and the small and large intestines, the pancreas and the spleen, were ligated, and after the removal of the vessels from the body, the blood was obtained by perfusing them with salt solution, and the total quantity was estimated (colorimetrically). Compared to the total blood (estimated by taking one fifteenth of the body weight), in two animals, the amount was found to be less than one seventh of the total. The amount of blood contained in the liver was less than one ninth of the total.[10]

Viscosity: Viscosity of the blood (defibrinated) showed a small progressive decrease.[2]

Depression of Freezing Point: The freezing point showed small and not significant changes.[2]

Respiration.—Rate, Amplitude, Regularity and Volume of Expired Air: In general, the total effect on the respiratory rate was a decrease from the rate under ether only. The decrease became more pronounced in the later stages of profound shock. Reflex augmentation was greater in the earlier than in the later stages. Under prolonged nerve stimulation, the reflex effects gradually diminished. The anesthetic factor renders it difficult to draw definite conclusions in all cases.

Amplitude varied in different stages of shock, and variations associated with reflex stimulation of the respiratory center introduced irregularities both of rate and of amplitude. In general, in the later stages of shock there was an increase in the amplitude, that is, depth of respiration.

With sudden onset of shock the respiratory sounds became softer. This may be associated with a change in the volume of tidal air, or with a change in inspiratory or expiratory time. In the later stages, irregularities became more pronounced, and not infrequently a type of irregularity consisting of alternate deep and shallow movements, often of group form, occurred. A type of respiration was observed in which there was a pronounced and prolonged inspiratory pause. In another type, inspiration was prolonged without much change in rate of expiration.

The volume of expired air of course varied with the rate and the amplitude. The total effect varied in different experiments, but in general, there was a decrease in the later stages.

Volume of Oxygen Retained and Carbon Dioxid Produced: The volume of oxygen retained varied greatly, not only with variations in anesthesia, nerve stimulation, etc., but also in shock, as compared to the stage under ether only. In different animals, under ether only, it varied greatly. This was true also in shocked animals. In general, in deep ether anesthesia, there was a decrease in oxygen retained. It seems that such variations are incidental rather than causal.

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[4] Porter: Am. Jour. Physiol., 1907, **20**, 399.

[5] Seelig, M. G., and Lyon, E. P.: The Condition of the Peripheral Blood Vessels in Shock, THE JOURNAL A. M. A., Jan. 2, 1909, p. 45.

[6] Levy, R. L.; Rowntree, L. G., and Marriott, W. M.: A Simple Method for Determining Variations in the Hydrogen-Ion Concentration of the Blood, Arch. Int. Med., September, 1915, p. 389.

[7] Marriott, W. M.: A Method for the Determination of the Alkali Reserve of the Blood Plasma, Arch. Int. Med., June, 1916, p. 840.

[8] Lockhart, Mummery and Symes: Jour. Physiol., 1907, **36**, 15.

[9] Henderson, Yandell: Am. Jour. Physiol., 1910, **27**, 163.

[10] Janeway and Jackson: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 193.

Carbon dioxid production varied greatly but not quantitatively with oxygen. Remarks on oxygen in general apply to carbon dioxid, including decreased production under deep anesthesia.

In harmony with the statements concerning oxygen and carbon dioxid, the respiratory quotient showed great variations.

Temperature.—There was gradual decrease in temperature, in some cases amounting to from 3 to 5 degrees, but there was no evidence of a direct relationship to shock.[11] Good recovery from shock was obtained after the temperature had decreased more than 3 degrees.

General Reflexes.—The chief somatic reflex observed was the eyelid to touch of the conjunctiva. In profound shock, after the discontinuance of ether, this reflex was maintained even at very low blood pressure levels. Other reflexes were rarely permitted to appear.

Cerebral Anemia.—Studies of cerebral anemia in relation to shock were made indirectly by comparing the condition in shocked animals with the condition induced through decreasing the circulation to the brain and upper cord; by comparing the effect of restoring or accelerating the cerebral circulation, on the manifestations in the two conditions, and by comparing the results obtained by administering drugs. We are not able to differentiate sharply between the ultimate condition induced through nerve stimulation and general tissue trauma, on the one hand, and the condition induced through interruption of cerebral circulation, on the other. Likewise, restorative measures led to very similar changes in the two conditions, for example, reestablishment or acceleration of cerebral circulation led to recovery of, or improvement in, cerebral function if instituted not too late. Such results followed restoration of cerebral circulation either by mechanical means, as aortic occlusion, or raising the general blood pressure, as by intravenous administration of epinephrin solution. In either case, drugs exhibiting potency only through action on the higher nervous tissues are inefficacious.

In two instances showing profound symptoms, one induced through nerve stimulation and trauma only, and the other associated with cerebral anemia produced by arterial occlusion, the pons, medulla and upper spinal region were kindly examined by Professor Klotz for fat emboli, with negative results.[12]

Remedial Procedures.—In shock of moderate degree under ether, prompt recovery was obtained on discontinuance of ether; but in severer grades this did not suffice. Elevation of the posterior portion of the animal to facilitate the return of blood to the heart led to recovery, but it was more efficacious when coupled with temporary aortic occlusion.

In profound shock, epinephrin in salt solution administered intravenously has promptly increased the general blood pressure, accompanied by improved action of the bulbar centers, particularly that of respiration. Gradual and prolonged administration of the drug would seem to offer advantages over intermittent injections in that recovery of cerebral function is more successful with a more evenly maintained arterial pressure than is the case with intermittent injections. Intra-abdominal administration had but slight effect.

Tyramin, intravenously, gave results that were disappointing. In magnitude, the effects were less than in unshocked animals.

With atropin only a mild stimulating effect on respiration was obtained, which was due presumably to direct action, as there was scarcely any effect on blood pressure. Such action, however, is not considered beneficial, as the center rapidly became exhausted.

A beneficial influence was obtained with sodium bicarbonate intravenously in that there was some rise of blood pressure,[13] but this was not of sufficient magnitude to establish an adequate cerebral circulation.

With lactic acid intravenously, contrary to expectation, slight beneficial effects were obtained, similar in character to those observed with sodium bicarbonate.

Administration of carbon dioxid by inhalation in profound shock was without beneficial action. Theoretically, in much earlier stages it is possible that it might be of benefit, that is, if administered at a time when the centers were capable of response to stimulation without immediate exhaustion.

Though observations with some of the drugs are too limited in number for final conclusions, we are strongly impressed with the greater promise of epinephrin than with any of the other drugs studied. Preventive studies were not undertaken, owing to the great variations in susceptibility of different animals.

COMMENT

Shock in man may be classified as (1) psychic, (2) traumatic, (3) psychotraumatic and (4) surgical. The fourth type is merely the first, second or third plus the anesthetic factor. In the dog the psychic factor is small or nil, the second and fourth being the predominant types, that is, traumatic or, as in these experiments, ether plus trauma.

Susceptibility varied greatly in different dogs. Some animals readily succumbed to brachial nerve stimulation alone; others only when nerve stimulation was combined with opening of the abdominal cavity and visceral manipulation; while others were highly resistant under both methods. Corresponding with this, the tendency to recovery on discontinuance of the stimulation was very different in different animals. In general, the more vigorous animals have been most refractory.

The anesthetic factor was most difficult to evaluate in interpreting the results. Since full surgical anesthesia was maintained until the condition of shock was pronounced (as judged by low blood pressure, etc.) the interpretation of all results up to this point involves consideration of this factor; and, since in no instance an animal was knowingly permitted to regain consciousness to pain, experiments in which recovery tendencies were pronounced and it was necessary to readminister ether were complicated even further by this factor. It is most important to maintain a uniform anesthesia, and in some of the animals this was not realized to the same degree as in others, owing to individual differences.

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[11] Kinnaman: Internat. Jour. Surg., 1904, p. 378.

[12] W. T. Porter (Boston Medical and Surgical Journal, 1917, **176**, 248, 699) has studied the relation of fat embolism to traumatic shock, particularly when associated with fracture of bones.

[13] Seelig, Tierney and Rodenbaugh: Am. Jour. Med. Sc., 1913, **146**, 195.

Not all of the animals exhibited unequivocally the condition of surgical shock. This question is difficult to discuss owing to the variety of views as to the picture of such experimental shock.

Surgical shock in man, typically at least, is an easily recognized entity. In the dog, as it occurs in regular surgical work, it is also very definite, though the impressions one receives are more intense in certain cases than in others. This is probably due to the suddenness with which it develops, sometimes it being very acute and pronounced, and again of slow onset. In the acute type, which has been observed to develop with great suddenness and intensity in operations involving one brachial plexus, death may occur within a very short time, that is, less than an hour; while in the type of slow onset, the first intimation may be what appears as undue prolongation of recovery from the anesthetic. An animal in this condition may live for some hours. After being once observed, both types are readily recognized. It was the acute type we tried to induce, and in some instances succeeded beyond question. As it was not feasible to prolong the experiments, the animal, if it did not succumb within a few hours, was killed with ether; in the case of refractory animals, therefore, we cannot say that a fatal type of shock was produced.

We are inclined to consider two grades of shock as having occurred in these experiments, one associated with the characteristic clinical manifestations, particularly a marked and persistent lowering of blood pressure, but with a pronounced tendency to recover on discontinuance of the anesthetic; and the other characterized by more profound symptoms, including a persistently lower blood pressure level with no tendency to recover on removal of the anesthetic. As previously indicated, it would perhaps be better to speak of this condition, at least its later stages, as collapse.[14]

Results indicate that both reflex augmentation and diminution of blood pressure may be greater or less either actually, or in terms of per cent. of blood pressure, after the pressure has been lowered by means applied with the view of inducing shock. Even when the blood pressure has reached a comparatively low level, augmentation or diminution may be obtained by sensory nerve stimulation. But it is well to note that the data do not permit differentiation between effect due to action on bulbar centers, and possible effect due to action on peripheral or accessory centers.

Neither is it possible to analyze closely the factor of "automatic" vasomotor center activity or tone; but direct inspection of the splanchnic vessels clearly revealed at least a moderate state of engorgement in shock, which would indicate lack of vascular tone in this region. The engorgement was not maximal, as was shown by increased redness on handling the intestines; therefore some vascular tonicity must have been present; or an active process of dilatation, or paralysis, was induced through handling. We have confirmed Seelig and Lyon's[5] observation that an increased venous blood flow from a limb of an animal in shock follows section of the sciatic nerve. But this fact, as pointed out by Bartlett,[15] does not prove that the degree of activity of the vasomotor center is greater in shock.

It is known from studies in cerebral anemia that the resistance and recuperative powers of the respiratory and vasomotor centers are quite similar.[16] And even though not identical in these respects, it is perhaps permissible in the absence of more direct observation approximately to judge of central vasomotor activity by the state of the respiratory center. From this standpoint, it would seem that in profound shock probably the vasomotor center is in a state of deranged functional activity, grossly comparable to the derangement of the respiratory center. In this connection certain other considerations should receive mention, as the similarity of sensitiveness of the respiratory and vasomotor centers to sensory nerve stimulation and their similar susceptibility or resistance to fatigue under such conditions. A point of particular interest is the gradual disappearance of augmentation under prolonged sensory nerve stimulation. Whether this is due to fatigue or other form of interference with conduction, or to other form or forms of mechanism, is not clear; but it is an interesting fact that under such conditions, stimulation of another afferent nerve may affect activity of both respiratory and vasomotor centers. These observations, we believe, furnish additional support for the view that, grossly speaking, under such experimental conditions, activity of the respiratory center may be taken as an approximate index of vasomotor activity. The greater functional development of peripheral vasomotor regulating mechanisms is another possibility to be taken into account.

Though reserve alkalinity in certain cases showed a marked decrease, it is by no means certain that in all cases there was a material decrease prior to the onset of pronounced manifestations of shock. The results indicate that much of the decrease observed occurs after pronounced symptoms have become manifest. For example, in one experiment, in the early stage of pronounced symptoms of shock, there was a decrease from 8.0 to 7.8, while in a late stage the decrease had continued to 7.1. That good recovery of cerebral function was obtained (by aortic occlusion) without changing the values for hydrogen-ion concentration or reserve alkalinity is strongly indicative that the cerebral manifestations of shock are not due to change in blood reaction.

Physical measurements of blood, including viscosity and depression of the freezing point, did not reveal alterations of a kind or magnitude considered sufficient to account for shock phenomena. The alterations observed were probably associated with hemorrhage due to withdrawal of blood samples; for example, entrance of lymph, and other experimental conditions, such as decreased renal activity.

The basis of calculating blood volume changes was the relative proportion of corpuscles to plasma, and the results are expressed in terms of per cent. of the volume at the time of taking the first sample. The figures when corrected for the blood lost through hemorrhage indicate, as a rule, an actual increase in total blood volume.

The recovery of less than one fourth of the estimated total blood from the engorged vessels of the alimentary tract and of the liver does not indicate that serious pooling of blood occurred in these areas. Also, the fact that with low blood pressure, marked improvement was obtained in return of blood to heart on elevation of the posterior portion of the animal after the portal vein had been ligated, supports this view. The inadequacy of cardiac massage alone in raising pressure in such conditions, and the efficacy of aortic occlusion only, indicate that low pressure is not due to cardiac muscular inefficiency; while the prompt and marked increase in pressure following elevation of the animal's hind quarters with the portal vein ligated indicates that low pressure is associated with decreased cardiac output, and that pooling of blood is not due necessarily to portal stagnation.

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[14] Guthrie, C. C.: Blood Vessel Surgery, 1912, p. 344.

[15] Bartlett: Jour. Exper. Med., 1912, **15**, 427.

[16] Stewart, Guthrie, Burns and Pike: Jour. Exper. Med., 1906, **8**, 289. Guthrie, C. C.: Blood Vessel Surgery, 1912, p. 318.

Respiration studies showed such variations and irregularities that it is not possible to make satisfactory generalizations. Attempts to determine the carbon dioxid tension in alveolar air were abandoned owing to lack of a satisfactory method of obtaining samples.

Temperature did not appear to be a causative factor. In all cases the total effect was a gradual decline. Pronounced shock was obtained when the decline was but a fraction of a degree. On the other hand, good recovery was observed after the temperature had decreased several degrees. Probably temperature change was incidental largely to experimental procedures (exposure of animal, etc.) rather than causative of shock. Good tendency to recovery exhibited with lowered temperature substantiates the correctness of this view.

As pointed out by Pike,[1] it is improbable that levels of blood pressure observed in shock would in all cases alone account for the condition apparently due to cerebral anemia. But in such experiments, activities of the central nervous tissues and hence their circulatory demands are increased, as by sensory nerve stimulation.[17] Therefore, it is difficult or even impossible in a given case to state that the tissue circulatory demands are being met even with only comparatively low blood pressure. From this standpoint, the evidence indicates fatigue of the nervous tissues as a causative factor of considerable magnitude.

One experiment was particularly interesting as illustrating this view. Although one carotid artery was not occluded, the symptoms were induced quickly, and simulated those of profound and fatal shock, including the late presence of eye reflex. This is interpreted as due to relatively greater anemia of bulb than of higher brain, which would explain the longer persistence of the eye reflex as compared to the results obtained by a more uniform decrease of cerebral circulation. Indidirectly, it substantiates the view that the interpretation of the persistence of the eye reflex in shock at a time when bulbar centers show marked derangement, in comparison with its rapid disappearance on sudden occlusion of all cerebral arteries, is probably due to lessened resistance of the bulbar centers to anemia through stimulation resulting in their greater fatigue.[18]

SUMMARY AND CONCLUSION

We are inclined to attribute the earlier stages of the condition termed shock, observed in these experiments, largely to degradation and fatigue of the bulbar centers due to ether poisoning, and to sensory nerve stimulation; and the more profound stages, to inadequate circulation to meet the bulbar tissue demands.

Though all of the blood circulatory phenomena are closely related and interdependent, perhaps the lowered capillary pressure and hence the sluggish return flow of blood to the heart, rather than chiefly venous dilatation, is a more comprehensive standpoint from which to picture the condition in shock. Among probable early derangements augmenting the condition are vasomotor changes affecting venous tone.

Treatment when instituted in the earlier stages yielded good results; in later stages, results were less satisfactory, owing presumably to irreparable injury to the central nervous system.

Therapeutic measures capable of restoring an adequate cerebral circulation, instituted before irreparable tissue injury had occurred, led to recovery. Such measures should be preferably of a mechanical nature, as elevation of the posterior parts of the body, with the view of increasing a return of blood to the heart and adding a hydrostatic factor to the cerebral blood pressure; increase of peripheral resistance as by aortic compression; and particularly when associated with severe hemorrhage, increase of blood volume by transfusion of blood or the intravenous injection of isotonic nontoxic solution, as sodium chlorid.

Theoretically, and from the standpoint of increase in blood volume only, injection of hypertonic solutions would be indicated. The recent observations of Sansum[19] on the marked increase in arterial blood pressure associated with and following intravenous injection of strongly hypertonic glucose solutions are suggestive.

Temperature, if low, should receive attention. The main indication, however, is promptly to institute and to maintain an adequate cerebral circulation.

In the case of drugs, the best results have been obtained with epinephrin solution intravenously. Drugs should be selected with the view of increasing the peripheral resistance and augmenting the return of blood to the heart by direct action on the blood vessels.

We believe that these considerations of treatment, with added considerations to meet the psychic factor, apply to shock in man. For example, as previously discussed,[20] in acute psychic shock, inhibition probably plays a leading rôle. In the series of experiments herein reported, there was little evidence that inhibition was a factor.

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[17] Ryan and Guthrie: Quar. Bull. Med. Dept. Washington Univ., 1908, **7**, 58; Am. Jour. Physiol., 1910, **26**, 343; Guthrie, C. C.: Blood Vessel Surgery, 1912, pp. 104, 135.

[18] Since this was written (July 6, 1917), additional experiments afford evidence supporting this view.

[19] Sansum, W. D.: Rapid Reduction of Intra-Ocular Tension in Glaucoma, The Journal A. M. A., June 23, 1917, p. 1885.

[20] Guthrie, C. C.: Blood Vessel Surgery, 1912, p. 345.

Free Dispensaries and the War.—At the annual meeting of the American Hospital Association at Cleveland, September 14-18, in discussing the effect of the entry of hospital and dispensary interns into the military medical service, a number of hospital superintendents intimated that the work of their institutions would have to be curtailed. It was indicated that this matter is being brought to the serious attention of hospital authorities. The idea was combated by authoritative speakers who argued that the special needs of war times called rather for an extension of their work in the communities. The discussions revealed that the idea of pay clinics for people of moderate means is making gradual headway in the hospital world. A new development of the dispensary idea is the establishment of special clinics for treating accidents under the state workmen's compensation laws. Under these laws, with the liability of the employers for the medical care of the injured workmen, the hospital will transfer to the new self-supporting clinic, in which the medi- cal staff is paid, a large amount of work which was formerly done free in the hospitals. It was said that the largest clinic, that at the New York Hospital, last year had a gross income of $35,000, and that of the Pennsylvania Hospital in Phila- delphia, $10,000. It was the sentiment that these pay clinics for general surgical work will spring up rapidly in all states having workmen's compensation laws.

THE VALUE OF EYE-GROUND OBSERVATIONS IN RECENT CASES OF FRACTURE OF THE SKULL

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A rise in the intracranial pressure above normal as the result of cerebral hemorrhage or edema is usually one of the most damaging factors in cases of recent fracture of the skull.

While it is interesting to know the nature and extent of the fracture revealed by the roentgenograms, it is not as important from the standpoint of immediate treatment as the determination of an increased intracranial pressure, and this is frequently foreshadowed quite early by edematous changes noted in the fundus of the eye.

In three patients of the series studied, roentgenoscopy revealed a distinct fracture of the base of the skull with no signs or symptoms developing other than those following an ordinary concussion. Some of the cases of basal fracture, in which an extensive hemorrhage occurred from the ear at the time of injury (virtually a "natural" decompression), developed none of the signs or symptoms of an increased intracranial pressure.

Observations were made in 212 cases that were diagnosed as fracture of the skull in the service of Prof. William Sharpe, at the New York Polyclinic, with whom I have studied the eye-grounds in these cases for the past two and one half years.

When the recent cases are examined for the first time, that is, within twenty-four hours after admission to the hospital, there is usually found a general edema blurring equally all the details in the fundus of the eye, and this blurring may be slight, or sufficient to obscure greatly the usual landmarks. The venous twigs when visible are usually dilated out of proportion to the size of the accompanying arteries.

Frequent and careful observations are made while these patients are in bed. In cases uncomplicated by an increase in the intracranial tension, the retinal edema gradually subsides. Occasionally, in some of the routine examinations after the first twenty-four hours following the accident, we note either an increase in the general edema that previously existed, or, to the edema that heretofore blurred equally all details, there is a decided added edematous obscuration of the nasal half of the disk and its margins.

These observations are most valuable, because they are usually some of the earliest indications of a rise in the intracranial pressure, and just as soon as possible after their detection the measurement of the pressure of the cerebrospinal fluid at lumbar puncture by the spinal mercurial manometer is done to determine its extent. In nearly every such instance an increase in the pressure of the cerebrospinal fluid above normal was recorded.

Infrequently there is seen in some of the cases an edema occupying the entire disk the height of which is measurable with the ophthalmoscope (papilledema). In all of these cases the cerebrospinal fluid was found to be under higher tension than normal

The degree of pressure of the cerebrospinal fluid at lumbar puncture recorded in a given case, and its pressure effect on the cerebral cortex, are prime factors which must be taken into account in deciding the character of the treatment the condition requires.

Dr. Sharpe advises that all patients with fracture of the skull be placed in bed, kept absolutely quiet, free catharsis maintained, given a liquid diet, and an ice helmet applied to the head. If no signs of intracranial pressure develop, the foregoing treatment is all that is given; but if the intracranial pressure is slightly increased and up to nearly double the normal, then in selected cases repeated lumbar puncture may be performed, and the condition relieved. If, however, the cerebrospinal fluid is found both with the ophthalmoscope and at lumbar puncture to be double the normal and even more than double, and the pulse rate may or may not be greatly lowered from medullary compression, then he advises a simple cranial decompression to be performed for the relief of pressure and for drainage before a possible collapse of the medulla occurs.

An examination of the fundus of the eye twenty-four hours after a lumbar puncture or cranial decompression has been done usually reveals a reduction in the amount of the edema that had existed previous to these operations.

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SYPHILIS OF BLADDER *

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Syphilitic disease of the bladder has been considered a rare affection. In the older textbooks it is sometimes not mentioned at all or it is dismissed briefly or its existence is even denied. In the most recent works the disease is considered so rare as to merit only the briefest mention. Within the past sixteen years, however, a considerable number of carefully studied cases have been recorded in widely scattered reports. These furnish sufficient data for a fairly comprehensive clinical study.

The history of this affection falls naturally into three periods. The first comprises those rare observations on syphilitics coming to necropsy in whom ulcers, tumors, or perforations of the bladder were discovered and were considered syphilitic in origin. This period extends to 1879, when Proksch critically reviewed all the published cases up to that time. He found only six cases which could be considered definitely proved (Morgagni, Ricord [two cases], Virchow, Vidal di Cassis, Tarnowsky).

To the second period belongs a small number of cases observed clinically in which the diagnosis was confirmed by the disappearance of all symptoms following antisyphilitic treatment (Morris, Grivtsoff [two cases], Chezelitzer, Margoulies, Towbien). No direct examination of the bladder lesion was made.

The third period begins in 1900, when Matzenauer published the report of his case and described for the first time the cystoscopic appearance of tertiary syphilis of the bladder. During the past sixteen years the number of observations has rapidly increased, so that up to the present time about forty cases have been reported. In 1909 it was shown that the bladder is

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

involved in the secondary stage. According to Levy Bing, a systematic examination of the bladder during the secondary stage of the disease will reveal that a more or less characteristic erythema, resembling the roseolar rash on the skin, and also superficial ulcerations are not rare. As these produce few or no symptoms they may be easily overlooked without a routine cystoscopic examination.

REPORT OF CASE

History.—N. G., boy, aged 19 years, came to the clinic complaining of frequent and painful urination, and passing bloody urine. His past history was unimportant. There was no history of syphilis or gonorrhea. For the previous three months the patient had had to pass urine frequently, night and day. On an average he got up eight times at night to void, and he urinated every ten minutes during the day. Marked pain in the perineum and along the urethra accompanied each urination, and the pain persisted several minutes after the act. At times the urine was quite bloody; at other times it was only slightly tinged with blood.

Examination.—The patient was a healthy looking young colored farmer boy presenting the facies characteristic of a painful urinary disorder. The chest and abdomen were negative. The external genitalia were normal. The urine was uniformly turbid, owing to the presence of pus, bacteria and red cells. It was slightly acid in reaction, and the specific gravity was normal. There was a slight cloud of albumin, but there were no casts. There were no scars on the penis or other evidences of healed cutaneous lesions. The inguinal axillary and epitrochlear glands were definitely enlarged. This glandular enlargement without apparent cause aroused suspicions of syphilis, and suggested the possibility of a syphilitic infection of the bladder. A Wassermann test was made and reported as strongly positive.

Cystoscopic Examination.—This was painful despite the free use of cocain. There was a marked general cystitis. All markings of the vesical mucosa were completely obscured. The mucous membrane was of a uniform rose color and had the appearance of a curtain of uniform color spread out over the inner wall of the bladder. It was difficult to locate the ureteral openings. Just to the outer side of the right ureteral opening was a single small ulcer, which was bleeding. It was about 1 cm. in diameter, with an irregular outline and an inflamed base. No other ulcers could be seen. The appearance of the ulcer suggested tuberculosis, but no tubercles could be found in the bladder, and the urine was negative for tubercle bacilli on repeated search.

Treatment and Result.—It was decided to apply the therapeutic test without any other form of treatment whatever, either local or general. Salvarsan, 0.6 gm., was given intravenously. The following day the patient noticed a definite decrease in frequency of urination. The improvement was continuous and rapid, and in a week's time the patient was able to retain the urine for three hours with little or no pain on urinating. A second injection of salvarsan was given, followed by mercury by mouth. Cystoscopy three weeks later revealed a remarkable change in the bladder. No trace of the ulcer could now be found. The ureteral openings appeared normal. The peculiar appearance of the mucosa had entirely changed. Normal markings of the mucous membrane were now clearly distinguished, with here and there discrete patches of inflammation such as one sees in an ordinary cystitis of a mild degree. No local treatment had been given previous to this examination. The urine was still turbid, owing to the presence of bacteria, pus cells and an occasional red cell. The improvement in the patient's condition was most striking. He was now able to retain his urine for three or four hours without discomfort, and voided without the marked pain and tenesmus of which he complained when he came under observation. His condition was so satisfactory that he insisted on going home to work, as he declared he was perfectly well.

COMMENT

There are several points of interest in the foregoing case report. The symptoms were those of a severe cystitis coming on without apparent cause. The urine showed an acid total pyuria, together with red cells and bacteria. The condition suggested tuberculosis of the urinary tract with a secondary infection, probably colon bacillus. Repeated search for tubercle bacilli, however, was negative. There were no changes to be made out in the epididymides, vesicles or prostate.

It so happened that I was looking for a case of syphilis of the bladder at the time. The general glandular enlargement aroused my suspicions of syphilis, and these were strengthened by a strongly positive Wassermann test. Cystoscopy revealed, in addition to a solitary ulcer about the right ureteral opening, a peculiar appearance of the mucous membrane such as I had never seen before. But there was nothing about the cystoscopic findings which I could consider characteristic of syphilis. Certainly the ulcer might easily have been mistaken for tuberculosis. I could not, as a result of my examination, say that the bladder lesion was syphilitic. It was determined, therefore, to put the patient on antisyphilitic treatment and to watch the effect of this on the symptoms and the vesical lesion. I was careful to avoid any local treatment whatever, or any internal medicine to relieve the symptoms. The marked and prompt improvement in the symptoms and the ultimate disappearance of the vesical lesion following salvarsan alone seems to justify the diagnosis of syphilis. It is of interest to note that no history of syphilis was obtained in my patient. This only serves to emphasize the point to which attention has so often been called, namely, that the history in many of these cases is thoroughly unreliable.

ETIOLOGY

Lesions of the bladder occur during the secondary and tertiary periods of the disease. In the parasyphilitic diseases the bladder is commonly involved, notably in tabes. Age and sex have no influence on the development of the bladder lesions. As tabes occurs more frequently in males, however, the associated bladder disturbance is more often observed in this sex. Although more common in middle life, cases occurring at the two extremes have been observed: at 4 years (Tarnowsky) and at 66 years (Gayet and Favre[1]).

The secondary lesions usually appear within a few months after infection, and are generally accompanied by lesions of the skin and other organs. Tertiary lesions, on the contrary, appear after a much longer period, up to twenty-five years. The bladder lesion may be the only evidence of the disease. In other cases the active syphilitic lesions of other organs or healed scars may be found. The majority of cases so far recorded belong to the tertiary period. It is quite probable that involvement of the bladder during the secondary stage would be observed more frequently if a routine cystoscopic examination were made. The occurrence of mild symptoms of cystitis during this stage is easily overlooked. These are attributed to the usual causes and their relation to a specific infection is not considered, particularly as they disappear under salvarsan and mercury.

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[1] Gayet and Favre: Jour. de Urol., 1915, 6, 352, three illustrations in color.

SECONDARY SYPHILIS

Nine cases of secondary syphilis of the bladder have been reported — six males and three females. The youngest was a child, aged 4 years, having been infected by its nurse. At necropsy extensive ulcerations of the mucous membranes, including bladder and urethra, were found. The liver was syphilitic. In all cases the bladder lesions were accompanied by secondary syphilis elsewhere — skin, mucous membranes, etc. Macules, papules and ulcerations have been described. Duroeux has described a macular eruption resembling roseola of the skin. In Fenwick's case (postmortem), papules were disseminated over the bladder mucosa resembling condylomas. The ulcers are usually multiple, from two to twelve, rounded or oval, superficial, with a slightly elevated edge and a necrotic base. They occur more frequently about the ureteral orifices, but may be found in other parts of the bladder. The adjacent mucosa is edematous, hyperemic, and the vessels are injected and prominent. The remainder of the bladder appears normal.

The symptoms of the secondary stage vary with the location and character of the lesion. In the case of Levy Bing there were absolutely no symptoms referable to the bladder, and the vesical lesions were discovered during routine cystoscopy. With ulceration at or near the vesical neck, symptoms of cystitis more or less acute are observed. Frequency, urgency, and tenesmus may be marked day and night, and are not influenced by rest. Pain is then a constant symptom referred to the suprapubic area or perineum, and radiating along the urethra, to the rectum and to the lumbar region. Hematuria when present is never profuse and is always terminal. The bladder capacity is reduced, and varies with the intensity of the symptoms.

The urine is often clear. In the presence of infection it is turbid, owing to the presence of pus and organisms. It may be bloody from the presence of red blood cells. The presence in the urine of the spirochete has been reported, but this observation has not been confirmed.

TERTIARY SYPHILIS

By far the greater number of cases of bladder syphilis so far observed belong to the tertiary stage of the disease. This may be due to the more pronounced symptoms associated with tertiary vesical lesions. Attention is thus directed to the bladder, and examination reveals the specific nature of the trouble.

Gummas of the bladder develop insidiously like all new growths, and in the early stages produce little or no disturbance. Urination is slightly more frequent and associated with mild discomfort in the region of the bladder, in the perineum, or in the urethra. Hemorrhage, sudden in onset and profuse, may be the first and only symptom noted. More often symptoms of cystitis develop and increase rapidly in intensity.

Hematuria is the most constant and most striking symptom of tertiary bladder syphilis. It closely resembles the hemorrhage of new growth of the bladder. It appears suddenly without pain, and is uninfluenced by rest or posture. It may continue for days or weeks and gradually subside, only to recur after a longer or shorter period. Complete retention may result from the formation of clots within the bladder. As a rule, hematuria increases with the duration and progress of the disease. Exceptionally it may be absent altogether.[2]

Pain is an inconstant symptom, and varies with the location of the lesion and the presence or absence of infection as a complication. In Simons'[3] case the patient complained of a dull dragging pain in the hypogastrium which had existed for two years. At first intermittent, it became constant day and night, and increased as the bladder filled. In some cases, pain is a marked feature of the clinical picture. It is likely to be more severe at the end of urination if the ulceration is located at the bladder outlet, and it is accompanied by violent tenesmus. Frequency of urination is a disturbing symptom in most cases. Slight at first, it rapidly increases until the patient voids every few minutes with pain and tenesmus. While the symptoms in advanced, long standing cases are very severe and distressing, the absence of marked symptoms in the presence of severe bladder lesions in the earlier stages is noteworthy. The development of the more acute symptoms probably coincides with the degenerative changes in the gummas, and ulcer formation. Often the bladder lesion is the only evidence of syphilis to be discovered. In the absence of a definite history, the specific nature of the disease is not suspected.

CYSTOSCOPIC APPEARANCES

As viewed by the cystoscope, two varieties of lesions occur: gummatous ulcerations and papillomatous growths. The former are more common; the latter are rare. They occur separately, but may exist together.

Such ulcers are formed by the breaking down of a gumma of the bladder at its center. They are usually multiple, there being one to three which are rounded or oval, and which vary in size, the largest being from 1.5 to 2 cm. in diameter. They are elevated above the bladder wall, projecting into the bladder cavity. They present a punched-out appearance with irregular borders and a grayish necrotic base. On the base of the ulcer one sometimes observes the necrotic material detached in places, leaving a red, nodular surface which bleeds freely. The surrounding mucous membrane is edematous, hyperemic and dark red or livid in color. The vessels are markedly injected and prominent.

The papillomatous lesions are very rare. In Margoulies' case (Case 1) there were three small growths the size of a small bean situated close together and located on the base of the bladder just outside the ureteral orifice. The appearance of these growths suggested cancer of the bladder, and an operation was advised. It was by mere accident that the operation was not performed, and iodid was administered. Prompt disappearance of the lesions followed.

Gayet and Favre[1] report a case (Obs. 2) of sclerogumma of the bladder and prostatic urethra. The bas-fond was elevated, thickened and reddened, and indurated. The fiery red surface presented a few small ulcers and numerous fissures giving the appearance of cerebral convolutions. The general appearance resembled that seen in cancer of the cervix which has involved the bladder wall. The same character of lesion is described by Picot.[4]

Syphilitic lesions of the bladder, both secondary and tertiary, develop slowly and show no tendency to heal spontaneously. The long duration of symptoms in the reported cases is a striking feature of the clinical history. The secondary lesions are superficial. The tertiary involve the deeper layers of the bladder wall, and unless arrested may result in perforation. Such perforation, developing rapidly and involving the peritoneal surface, may terminate in fatal peritonitis. If the process develops more slowly, a loop of bowel may become adherent to the bladder, and perforation into the bowel occurs. Thus syphilis is one of the etiologic factors in the production of vesico-intestinal fistula. Vesicorectal or vesicovaginal fistula may result from the perforation of the bladder base.

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[2] Picker, R.: Ztschr. f. Urol., 1913, 7, 192.

[3] Simons, Irving: Case of (Syphilitic?) Ulcer of the Bladder, THE JOURNAL A. M. A., June 21, 1913, p. 1943.

[4] Picot: Jour. de Urol., 1912, 2, No. 5.

TREATMENT

A striking feature of bladder syphilis is its prompt response to specific treatment. This is characterized by the immediate subsidence of all symptoms and the gradual disappearance of the vesical lesions. On the other hand, the measures usually employed in the treatment of ordinary cystitis have no influence whatever on either the symptoms or the lesions.

Profuse and persistent hematuria, which is often the presenting and predominant symptom, quickly subsides and disappears completely in a few days after the beginning of treatment with mercury or after the administration of salvarsan. No less striking is the prompt subsidence of all signs of vesical irritation, frequency, urgency, tenesmus, and a gradual return of the vesical capacity to normal.

The gradual healing of syphilitic lesions of the bladder may be followed by repeated cystoscopy. At the second congress of German urologists, Ernst Frank presented a series of cystoscopic photographs demonstrating the gradual healing and final disappearance of these lesions under treatment. Similar demonstrations have been made since by other observers.

It is the strikingly rapid subsidence of symptoms under specific treatment that makes the therapeutic test so valuable in differentiating syphilitic from nonsyphilitic vesical lesions.

The bladder changes occurring in certain diseases of the nervous system which we now designate as parasyphilitic are too well known to demand discussion at this time. They have been considered in another place.[5]

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ABSTRACT OF DISCUSSION

Dr. Martin Krotoszyner, San Francisco: I have seen one case that, judging from the therapeutic result, I feel justified in classing among the cases that are considered syphilis of the bladder. A baker of 60 entered the hospital on account of sudden, painless and abundant hematuria, as the cause of which a small papillomatous growth, situated near the trigon and midway between the ureters, was ascertained cystoscopically. The patient admitted previous syphilitic infection. He had married late in life and was the father of two half-grown, healthy girls. Suspicious scars and other skin manifestations were the only other objective findings. The Wassermann was strongly positive. All bladder symptoms, including hematuria, quickly disappeared under combined antisyphilitic treatment. At a second cystoscopy, six months after the patient's discharge, the papillomatous excrescence was still visible, though apparently less prominent and reduced in size.

While I have observed a great many bladder lesions due to central or spinal syphilis, I have never seen a bladder ulcer the syphilitic nature of which, as in the case reported by Dr. Fowler, became obvious through its prompt reaction to specific treatment. My own observation, therefore, does not constitute a classical case of bladder syphilis. Such cases must be very rare indeed, and I recall in this connection the statement of Casper, who doubts the occurrence of bladder syphilis, of which he, like other authorities, has never been able to obtain authenticated cystoscopic evidence.

Dr. Charles J. Watterston, Birmingham, Ala.: I can add one more case to Dr. Fowler's series. It is the case of a negro girl in whom we made a cystoscopic examination on account of hematuria. There was a small, raised ulcer about 1 cm. in diameter just below the right ureter and several smaller erosions running down toward the trigon. The patient had a strongly positive Wassermann, there were other evidences of syphilis, and the lesions healed completely under antisyphilitic treatment; that is, salvarsan intravenously, followed by mercury.

Dr. H. A. Fowler, Washington, D. C.: Formerly we were led to believe that syphilis of the bladder did not occur, or, if it did exist, was rare. The experience of competent observers during the past few years compels us to change this view, and we now believe that this disease is not so rare as it was thought to be. This is in line with our knowledge concerning syphilitic infection of other mucous membranes. It is probably our failure in diagnosis rather than the rarity of the lesion that is responsible for the prevailing opinion.

There are one or two points to emphasize. There are no characteristic cystoscopic appearances by which syphilitic lesions of the bladder can be recognized. The diagnosis cannot be made by cystoscopy alone. The lesion cannot be differentiated in all cases by its cystoscopic appearances from tuberculosis or new growths. There are a number of cases reported in which syphilis was mistaken for cancer. In the secondary stage the lesions are superficial and may produce no symptoms whatever. Hence they are easily overlooked.

After all, the essential point is to have in mind the possibility of syphilis of the bladder if we are to avoid errors in diagnosis. The mistake has been made of advising operation for a supposed new growth, then to see the lesion clear up rapidly under antisyphilitic treatment.

NINETEEN CASES OF TYPHOID FEVER DUE TO EATING TURKEY SALAD

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Health Commissioner
NORFOLK, VA.

A reception was held at a local club by a number of women of Norfolk, June 26, 1917, about fifty guests being present. Among other articles of food served, there were several bowls of turkey salad. The turkeys were supplied from a cold storage plant, the celery came from Baltimore, the lettuce was bought in the open market, and the mayonnaise dressing was mixed at the club. The salad was prepared by a colored woman who has a local reputation as a cateress; she cooked the turkeys at home, carried them to the club, and prepared the salad there. Her assistants were three colored women and a colored man.

Mrs. W. and Mrs. R., two of the guests, assisted in serving the salad, ate portions of it, and both came down with typhoid fever fourteen days later.

Mrs. D., Mr. C., and Mr. T., also guests at the reception, ate salad and in sixteen days developed typhoid fever.

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[5] Besides the citations in the text, these additional recent cases will be of interest:

A critical review of the literature is given by Paul Asch in connection with his paper in the Zeitschrift für Urologie, 1911, **5**, 504.

Pereshivkin: Ztschr. f. Urol., 1911, **5**, 732.

Mikhailoff: Ztschr. f. Urol., 1912, **6**, 215, two colored plates.

Mucharinsky: Ztschr. f. Urol., **6**, 376.

Pedersen, James: Med. Rec., New York, 1916, **90**, 235.

Baker, Theodore: Surg., Gynec. and Obst., **24**, 187.

Mr. W., who had typhoid fever ten years before, stated that he ate the salad that night and two weeks later he noticed an elevation of his temperature with symptoms of mild typhoid. He had a fever, lassitude, weakness, and the usual symptoms of typhoid, which continued for three weeks. He thought he had a mild form of the disease. He reported it himself and said that he was quite certain he had typhoid, as he recognized all the symptoms of his former attack. We did not enter the case, however, in our records.

After the reception, the women sent a bowl of the salad to an orphan asylum. At that time there were eight little girls in the institution. One, aged 6 years, having a delicate stomach, the matron did not give her any of the salad; another, aged 12, refused it; the other six girls, aged 8, 5, 14, 14, 15 and 6, respectively, ate more or less freely of the salad, and in from thirteen to sixteen days all came down with typhoid fever and are now, August 4, in the hospital.

E., one of the colored women who assisted in preparing the salad, ate some of it and gave portions to her two children. All three came down with typhoid; E. three days after the reception, and the children two weeks later. E. complained of being sick for two weeks prior to the reception. A brother of E. visited his sister the day after the reception. He was given a dish of the salad, and developed typhoid, July 10. Another colored woman, who assisted in preparing the salad, carried a portion home, gave some to her two children and also to two nephews; all four came down with typhoid.

We find that all of these persons came down with fever in from twelve to sixteen days after eating the salad, except E., who assisted the cateress in preparing and serving the salad. No other common factor figured in these cases; practically all the patients took milk from different dairies; 50 per cent. of them did not drink milk at all. We eliminated water, in view of the few cases, together with the fact that the Norfolk public water supply is analyzed and examined daily and is constantly treated with liquid chlorin. Moreover, investigation shows that there is no case of typhoid fever on the watershed.

Each of these persons ate the salad and came down at the expiration of the usual period of incubation, except E. Now, we find that E. was sick for two weeks prior to the night on which the salad was served, although she did not take to her bed, but did go to bed three days later, namely, June 30, with high fever and the usual symptoms of typhoid. Of course, if she had been infected from the salad, June 26, she would not have developed typhoid at this early period. It would appear that E. had typhoid for two weeks prior to June 26, the night of the reception, and may have infected that portion of the salad which she handled.

It would appear further, as a logical deduction, that that portion of the salad handled by E. was the last served at the table, and only a small number of the guests partook of it, and it was this portion that was left over and distributed to the asylum and carried home by the assistants, since it is obvious that if this portion had been served early on the table it would not have been left over for distribution. On the other hand, if this portion had been served freely to the guests and was infected, the personnel of the cases would of course have been entirely different and no doubt larger.

PSYCHOSES OTHER THAN PARETIC DEMENTIA IN SYPHILITIC INDIVIDUALS *

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The great multiplicity and variability of manifestations in syphilis of the nervous system is a well established fact, but the rôle of syphilis in mental affections, with the exception of paretic dementia, has been suspected only since 1879, when Fournier[1] expressed the following view: "While syphilitic insanity has not yet a distinct place in nosology, nevertheless, personally, I feel that syphilis is apt to create cerebral disorders which may be considered as undisputable forms of insanity." Since then the relationship of syphilis to psychoses as cause and effect has been studied by a few observers, but as yet no definite opinion can be formed. The importance of this problem cannot be overestimated. The present contribution, which concerns twenty-three cases kept under observation for a long time, will perhaps enable one to elucidate some features of this difficult problem. Before entering into a discussion of the causal relationship between syphilis and the mental manifestations, let us consider the entire series of cases in two separate groups. In the first group there were five cases associated with secondary manifestations of syphilitic infection. The second group consisted of eighteen cases of mental disorders in the tertiary period of syphilis.

REPORT OF CASES—GROUP I

Cases 1 and 2.—Two patients developed a slight fever, with the appearance of mucous patches in the mouth, and a delirious state. Although the fever was brought down to normal, the delirium continued for a period of ten days in one case and seven days in the other. The delirium in both cases was accompanied by visual hallucinations. Complete recovery followed in both cases. Two months later in one, and three months later in the other, a similar attack occurred and again it was preceded by fever, also by a gastro-intestinal disorder, insomnia and headache. The delirium developed rapidly in both cases, and complete recovery followed after vigorous mercurial treatment. Both patients were free from alcoholic or other intoxications.

Cases 3, 4 and 5.—The other three patients of the same group presented mental phenomena of a more prolonged character. Mental confusion was the predominant feature. Defects of orientation in space and time and amnesia were the other manifestations. One patient, for example, presented enlarged cervical and inguinal glands, muscular pain and persistent headache, four months after the initial infection. He began then to complain of pain in the throat. Several mucous patches were seen in the pharynx and on the tonsils. The temperature rose to 101 F. He became somewhat stuporous, replied to questions with considerable delay, placed his hand frequently on the head as if in pain, ceased to ask for food, and was decidedly confused. He had great difficulty in recognizing his own relatives, and succeeded only after looking at them for some time. He made errors in dates and places. He could not recall the names of his friends. He mistook one of his children for another. He did not know the number of his children, the date of his marriage, and a number of other important events in his life. Being a teacher of languages, and speaking French quite well, he now could not recall the meaning of ordinary words. Asked in

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* Because of lack of space, this article is abbreviated in The Journal. The complete article appears in the Transactions of the Section and in the author's reprints. A copy of the latter will be sent by the author on receipt of a stamped addressed envelope.

[1] Fournier: La syphilis cérébrale, Paris, 1879.

French how he felt or if he had headache, he was unable to grasp the meaning of the word "tête." He kept on repeating this word without understanding it, and when insisted on, he finally said that he did not understand it. At night he was sometimes slightly delirious and would attempt to get out of bed. During the day he was found several times as if conversing with some one. He then looked around him, and, after saying a few words, he would pause and then lower or raise the tone of his voice. He evidently had hallucinations. This condition continued for two weeks, during which time he received an intraspinal injection of neosalvarsanized serum followed by mercurial inunctions. Improvement was soon evident. Two weeks later he received another similar treatment, and the man made a gradual recovery at the end of eight weeks. Memory, orientation and mental attitude have all returned to normal. The enlargement of the glands remained unaltered, but the mucous patches healed promptly. The headache disappeared entirely.

In another case a man of 29, piano teacher, five months after the initial infection presented an acute pharyngitis accompanied by a slight elevation of temperature (99.3 F.). He rapidly developed mental hebetude. He was confused and disoriented, and his memory became cloudy. The entire condition lasted about two weeks, during which time he had one intraspinal injection of 0.9 gm. of neosalvarsanized serum. With the disappearance of the pharyngeal condition, the mental disorder also became normal.

To sum up, the five cases of the first group presented a symptomatology which we ordinarily find in toxi-infectious psychoses. A delirious or stuporous state is the chief manifestation. A confusional condition is almost always present. Hallucinations may or may not be present. What is particularly interesting and quite characteristic is the occurrence of the mental phenomena apropos of acute secondary manifestations. When the latter disappear, the former commence to improve, but they usually last longer than the somatic manifestations. Finally, it is noteworthy to observe that the specific treatment has a rapid and efficacious effect on the psychic and physical manifestations which, as already mentioned, run usually parallel. The entire picture of the mental status in the secondary period of syphilis is quite analogous to that frequently observed in infectious diseases and especially in alcoholic intoxication.

GROUP II

The second group comprises cases in which the mental disorder developed many years after the initial infection. Without entering at present into the possible relationship between the old syphilitic infection and the present psychic manifestations, let us first register the occurrence of these manifestations in individuals with a former history of syphilis. We have in this group eighteen cases, three of which developed in connection with a traumatism, subacute confusional states with all the characteristic features met with in the first group of cases, except for the fact that those phenomena were of a milder character. There were no hallucinations, but merely a state of mild confusion and incoherence; also a mild delirium in the evening. A slight degree of amnesia was present throughout the entire duration of the affection. One case presented the mental manifestations of Korsakoff's syndrome, except the polyneuritis. We find here anterograde and posterograde amnesia, confusion, disorientation and confabulation.

Case 6.—M. H., a laborer, aged 45, contracted syphilis at the age of 20. He is married and has two children. His wife has had three miscarriages. The Wassermann test is positive on the blood serum. There is no history of alcoholism. After a few days of very hard labor he began to complain of headache, which became very persistent. Soon somnolence made its appearance. The patient would fall asleep several times a day. A confusional element was associated with the amnesia. The patient was at first unable to recall acts or thoughts of his own, or of others, which occurred on the same day, but soon the amnesia concerned also past events. He was unable to realize the situation. He could not tell how long he was ill. At times he would not recognize surroundings. He could not tell the time of the week or of the year. At other times he would clear up and answer questions correctly. Pseudoreminiscences were striking. He would speak of persons whom he never met. He would speak of events that never occurred; as for example, one evening he told his nurse of participating in a ball given by the mayor of the city, saying that he danced the entire evening with a beautiful lady. A few days later he spoke of having crossed a bridge at moonlight and of having met "a very strange man who led him to a castle and then disappeared." This fantastic confabulation, together with the amnesia, was quite conspicuous, and if we add the periodic somnolence, the mental clinical picture of my patient will be complete. As to the somatic symptoms, the patellar tendon reflexes were exaggerated. The patient complained of headache. The disorder lasted six weeks, after which a mild degree of mental hebetude remained for two weeks. The recovery was complete. Thirteen months later a similar attack occurred which was milder in its individual symptoms and which lasted but three weeks. At no time was there any evidence of polyneuritis.

This observation is interesting for two reasons. First, it speaks against the exclusivism of the discoverer of this syndrome, Korsakoff, who believed that it can exist only in association with polyneuritis and only in cases of alcoholism. Some authors have already called attention to the existence of Korsakoff's syndrome without polyneuritis. Suffice it to mention the observation of Stransky[2] on tabes, in which Korsakoff's syndrome disappeared when the patient was placed on antisyphilitic treatment. Chaslin and Portocalis[3] reported a case of Korsakoff's psychosis, without polyneuritis, which came to necropsy. Stepanoff,[4] Raymond,[5] and Roemheld[6] speak of the occurrence of incomplete Korsakoff's psychosis, namely, without polyneuritis, in syphilis of the central nervous system. They all appear to be unanimous in the opinion that the psychosis is due to a syphilitic intoxication, although Roemheld believes that the increase of intracranial pressure in cerebral syphilis may be a contributory factor. The foregoing observation of my series seems to corroborate the view that the polyneuritic psychosis of Korsakoff is characteristic not only of alcoholic, but also of other toxi-infectious conditions, such as syphilis.

The other important fact brought out in my case, a fact which may be considered of some diagnostic value, is the association of somnolence with the other mental manifestations. Raymond, quoting Jolly, and Stepanoff, from his observations in Ziehen's clinic, both call special attention to the symptom "somnolence" which was present in their cases of cerebral syphilis with Korsakoff's syndrome. It appears, therefore, that this occurrence is frequent enough to be taken into consideration in differential diagnosis.

The remaining fourteen cases are distributed as follows: Six cases presented the clinical picture of manic-depressive psychosis; three cases were of the paranoid type; two cases were with involutional melancholia, and three cases presented cerebral syphilis of long standing with progressive dementia.

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[2] Stransky, Erwin: Jahrb. f. Psychiat., 1905, **26**, 422.

[3] Chaslin and Portocalis: Jour. de psychol., 1908, p. 303.

[4] Stepanoff: Berlin thesis, 1910-1911.

[5] Raymond: Pathologie nerveuse, 1910, p. 279.

[6] Roemheld: Arch. f. Psychiat., 1906, **41**, 703.

The six cases of manic-depressive psychosis present two distinct groups. In three of them auditory hallucinations were present through every one of the maniacal phases of the condition. In the other three cases there were no hallucinations. It is also interesting to observe that the specific treatment had a beneficial effect on the first group, but no effect whatever on the last group. All the six cases presented a positive Wassermann reaction on the blood serum. The fact that in all the six cases there were morbid hereditary elements, such as insanity, psychasthenia and epilepsy, deserves special mention. In the first three cases there were also personal morbid antecedents, such as an attack of chorea in childhood, irritable disposition, and prolonged periods of insomnia. It is also interesting to call attention to the fact that in the three hallucinatory cases there was a marked meningeal reaction during the maniacal phases revealed by a cytologic examination of the spinal fluid. The number of cells ranged between thirty-five and ninety, and were mostly of lymphocytic type. One of these cases is particularly interesting:

Case 7.—A man, aged 40, a watchmaker, contracted syphilis at the age of 22. He is married and has three children. One child has Little's disease, one is epileptic and the third is apparently normal, but pale and frail. His wife had three miscarriages. The patient had three attacks of chorea when a child. He was always considered peculiar and eccentric, and frequently suffered from insomnia. His father was alcoholic, and his mother, before her marriage, was confined to an institution for the insane for a period of eighteen months for some mental disorder. At the time of examination he presented no special neurologic symptoms, except exaggerated tendon reflexes with occasional disturbance in the power of controlling the sphincter of the bladder. The Wassermann test was strongly positive on the blood serum and spinal fluid. Up to the present illness, nothing abnormal was observed in the patient's behavior. He made a comfortable living, led a regular life, and did not use alcoholic beverages. His third child suddenly took sick and died from pneumonia. As this was the only normal child, its death threw the patient into such a state of despair that for forty-eight hours he could not sleep and did not partake of any food. He became depressed, and ceased to speak. When questioned, he answered after considerable delay. He was found frequently with tears in his eyes, and would moan, and complain of his fate. The condition lasted six days, after which the patient entered a state of great excitement. He was restless and impatient. He would discuss matters in a loud voice and disagree on any subject. He became quarrelsome, and would break and tear things that fell into his hands. Two days later he commenced to complain of annoying and disturbing sights, especially in the evening. He saw faces of a threatening character. He saw his child being tortured by other children. He saw women jumping into a river for the purpose of drowning. The patient showed no confusion, and answered questions clearly, but persisted in seeing vividly the sights which, he said, threw him into a state of uncontrollable restlessness. Soon he developed expansive ideas of himself. He assumed an air of importance. He asserted his ability to accomplish acts that others could not. He considered himself well known to personages of note. He expected to become very wealthy. Gradually the period of excitement began to subside, the patient commenced to sleep at night, and the hallucinations disappeared. For two weeks the patient appeared to be free from any disorder and to take an interest in his surrounding, but he began to return gradually to his depressive state, which was of the same character as the first attack. With this attack, however, there was present a delusion of self-blame. He conceived the idea that his child died through his neglect. He worried intensely, and was frequently seen in profuse tears. This phase lasted longer than the phase of depression in the first attack. He finally recovered, but soon entered into a hypomaniacal state. He become talkative, restless and irritable, but the state of exaltation was decidely less pronounced than in the first attack of the psychosis. The state of mind concerning his own importance did not exist this time. There was no more talk about his riches, his abilities, etc. He had also some visual hallucinations of a transient character, which occurred only at night. He would see for a few moments images of faces of dead relatives or of his child. The patient was treated intraspinally with neosalvarsanized serum. He had two injections during the two attacks and only during the maniacal phases. A marked reduction of the lymphocytosis in the spinal fluid followed the treatment, and this ran parallel with the decrease in the excitement and with the shortening of the maniacal phase. In the depressive phase no increase of the reduced lymphocytosis was observed, and there was no further decrease in the already obtained cytologic formula. The spinal fluid was found normal when examined several weeks after his last attack.

At first glance one is inclined to admit a certain relationship between the lymphocytosis and the manifestations of the psychosis. On the other hand, there is no proof that the lymphocytosis did not exist before the outbreak of the psychosis. The disappearance of the lymphocytes may have been due entirely to the treatment. The irritation of the spinal meninges which was evident here because of the lymphocytosis was evidently of syphilitic nature. In view of the parallel development of the psychosis and the meningeal reaction it is difficult to reject all relationship between the two. It is equally difficult to admit that the syphilitic toxins are liable to create such a typical psychosis as is also encountered in cases without a syphilitic infection. One must not forget that we are dealing here with an individual whose personal and hereditary antecedents were of a pathologic nature. We have here important predisposing elements which are so frequently observed in the psychosis under discussion. We have here also a powerful exciting factor, namely, the death of the patient's beloved child, and of the only normal child, while the other two defective children were a source of constant worry and anxiety to the patient. We have here, consequently, sufficient causative agents to influence the domain of affectivity, as well as that of intelligence. The latent psychopathic tendencies were evidently awakened here not only by the direct emotional incident (death of the beloved child), but also by an outbreak of syphilitic meningitis which, to a certain extent, brought in some modifications in the clinical picture of the manic-depressive psychosis. The modifications apparently consisted of the hallucinatory phenomena, which were present exclusively during the maniacal phases. The occurrence of lymphocytosis only during the phase of exaltation, but not of depression, finds its *raison d'être* when we attempt to connect the attack of syphilitic meningitis with the simultaneous onset of excitement accompanied by visual hallucinations. It is quite logical to assume that parallel with a spinal meningitis there exists a cortical meningeal irritation. The presence of hallucinations, and only during the manic phase, may serve perhaps as an important diagnostic element in considering manic-depressive psychosis in an averred syphilitic individual.

The three patients who presented hallucinatory elements are still under observation. Their Wassermann reaction still remains positive in spite of freedom from distinct outbreaks of manic and depressive states.

The other three cases of the same group presented no hallucinations. The individual phases of the psychosis were similar to those of the first group. In all the Wassermann tests on the blood were positive, but on the spinal fluid they were negative. There was a lymphocytosis, but of an exceedingly moderate degree. The number of cells ranged from ten to eighteen. In all three patients the only objective neurologic symptom was a more or less increased patellar tendon reflex. The first outbreak of the psychosis was precipitated in all three cases by some strong emotional event. They all received between two and three intraspinal treatments. Two improved and one was uninfluenced by the treatment. The improvement in the two was temporary, as shortly after the last injection the condition returned. It was apparent that in this subgroup of three cases there was less relationship between the potential syphilis and the psychosis than in the first subgroup.

The occurrence of manic-depressive psychosis in the tertiary period of syphilis is certainly a possibility, but as to their relationship definite conclusions cannot as yet be drawn. In the literature there are some records pointing to the coexistence of this psychosis with cerebral syphilis, but so far none of them, including those of Kraepelin, can, with any degree of certainty, solve the causal relationship between the two. Finckh[7] was among the first to describe periods of expansion alternating with periods of depression accompanied by hypochondriacal delusions of a more or less systematized nature. Westphal[8] describes three such cases. The most extensive study of syphilitic mental disorders which may resemble phases of manic-depressive psychosis was made by Plaut.[9] He saw maniacal states with intense agitation and expansive ideas, so that he acknowledged the great difficulty in differencing them from genuine mania. Other authors saw similar conditions in syphilitic individuals. Mosny and Barat[10] report a case of acute psychosis of the manic-depressive type with a meningeal reaction of syphilitic origin.

The diagnosis of the psychosis during the maniacal state sometimes presents great difficulty. Kraepelin lays special stress on this difficulty in differentiation from paresis. Ziehen[11] reports cases in which the diagnosis of paresis of the circular form was made, but which turned out to be in reality cases of cerebral syphilis. In his work he refers to a case of Hitzig in which, in addition to the alternative phases, the delusive ideas were of the dementia type as in paresis, but the evolution of the disease compelled him to abandon the diagnosis of paresis. In the differential diagnosis the physical signs of paresis, as well as the state of the spinal fluid, and the Wassermann test on the blood and on the spinal fluid will be of great assistance.

Another difficulty in differentiating paresis from other psychoses is encountered when the morbid condition is stationary. Gaupp[12] is of the opinion that when a case of suspected paresis remains stationary it is invariably not paresis, but cerebral syphilis. In the diagnosis of manic-depressive insanity in syphilitic individuals it is important to lay special emphasis on the occurrence of hallucinations. Kraepelin and Finckh[7] believe that the latter are pathognomonic of syphilis and that the alternating psychosis is syphilitic in nature. Saiz[13] is firmly of the opinion that syphilis per se is capable of causing a manic-depressive psychosis. Raymond and Janet[14] report a case of manic-depressive psychosis in a case of hereditary syphilis. The six cases reported by me can also be placed among those recorded by authors mentioned. Particularly interesting are the three cases in which hallucinations were present, and especially instructive is the parallelism between the latter and the cytologic formula of the spinal fluid.

As previously discussed, although the subject of the direct relationship of syphilis to the alternating psychosis is not definitely established, nevertheless there are strong presumptions in favor of such relationship, particularly in cases which present hallucinations.

An association of syphilis with mental manifestations of the paranoid type was observed in three cases of my series. They were all in young individuals. The onset, the histories of the patients prior to the final outbreak, the evolution of the manifestations and their character were all analogous to the dementia praecox group of the paranoid variety. Kraepelin and Plaut[9] observed a number of cases in which many years after the initial syphilitic infection symptoms developed which are frequently found in dementia paranoides. In spite of their efforts to trace symptoms which could be attached to syphilis, but not to dementia praecox, they apparently have not fully succeeded. In reading their records one fails to find pathognomonic features on the basis of which a special clinical picture could be constructed. In Plaut's cases, physical symptoms were present, and this circumstance according to him should enable one to differentiate from the dementia praecox with a constitutional basis. But in Kraepelin's cases, which in general presented clinical pictures similar to those of Plaut's cases, physical symptoms were totally absent. Both authors, however, observed a few manifestations which, in their onset, mode of development and course, present a picture somewhat different from that of the classical dementia paranoides. They call attention to the absence of gross disturbances of the personality of the will and of the attitude and demeanor. The delusions develop rapidly and they are poor in their contents. The hallucinations are chiefly of the auditory type. Orientation is good except for a few brief episodes of cloudy consciousness. There is present a certain amount of realization of the disease alongside of a pathologic indifference to surroundings. Sometimes in the course of the disease there may occur apoplectiform attacks such as we observe in cerebral syphilis. The condition runs a very slow course and gradually dementia sets in. Then catatonic manifestations appear.

Among all these symptoms Kraepelin lays special stress on the hallucinations, which, in the syphilitic cases are, according to him, unusually intense. One of his patients, a girl of 21, having all the symptoms of hereditary syphilis with a positive Wassermann reaction, presented a persecutory delusion with multiple hallucinations, especially of auditory character. A superficial glance at this description will lead one to believe that all the elements of genuine dementia praecox are present, but a more careful analysis will reveal that the resemblance is not profound.

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[7] Finckh: Centralbl. f. Nervenh. u. Psychiat., Nov. 15, 1906, p. 865.
[8] Westphal: Allg. Ztschr. f. Psychiat., 1908, p. 829.
[9] Plaut: Centralbl. f. Nervenh. u. Psychiat., September, 1909, p. 659.
[10] Mosny and Barat: Encéphale, 1910; T. I., p. 720.
[11] Ziehen: Centralbl. f. Nervenh. u. Psychiat., 1906, p. 653.
[12] Gaupp: Centralbl. f. Nervenh. u. Psychiat., 1907, p. 696.
[13] Saiz: Untersuchungen über die Etiologie der Manie, Berlin, 1907.
[14] Raymond and Janet: Arch. de neurol., October, 1903, p. 355.

In dementia praecox, with a constitutional basis, the delusional phenomena are frankly absurd and are not the result of cerebral effort. There is no desire on the part of the patient to know exactly the causes of the persecutory ideas, which appear usually as a result of sudden, extravagant and incoherent ideas subservient frequently to various hallucinations. The loss of intellectual activity, the negativism, the impairment of affectivity, the loss of orientation, the loss of the will which is manifested in rigid movements, are all the fundamental features of the classical form. Finally the delusional ideas do not, in the least, alter the attitude of the patient, so that some of them forget entirely their delusions. They all terminate in a state of brutishness and total indifference to surroundings.

If a comparison is drawn between this picture and that occurring in cases with syphilis, the contrast is striking. One must admit from the records so far published that syphilis is capable of developing a syndrome resembling dementia praecox, but not actually identical with it, and that we are dealing here with a special form of cerebral syphilis. The three cases observed by me presented many features in common. The resemblance to the classical dementia praecox was merely a resemblance, but not an identity. Delusions of a persecutory character were present in all, but they were not of a persistent character. Hallucinations were auditory, visual and hypochondriacal in the same patient. They were conspicuous and persistent. Orientation was fair. The attitude and demeanor were in general fair. The patients took at times a certain amount of interest in the surroundings. It was evident that no gross disturbance of personality was present for a long time until three and four years later, when signs of dementia commenced to make their appearance. Moreover, two patients had on several occasions attacks of aphasia, which were all of a transient character. In only one case were physical symptoms present, namely, irregular and unequal pupils and difficult micturition. In all three patients the tendon reflexes were increased. Finally two of the patients showed improvement after several intraspinal injections of salvarsanized serum. The third case remained uninfluenced by the treatment. The history of the latter presents some interesting features.

Case 8.—J. B., a man, aged 29 years, had a chancre at the age of 18. He was a mechanician by trade and had always been energetic, but about a year ago he commenced to neglect his work, would sleep late and complained of feeling tired. He was very irritable. Soon he became somewhat indifferent as to whether he lost his position or not, and no amount of reasoning could arouse him to his obligations toward his family. Soon he was found suffering from insomnia. He would pace his room or would go out on the street and wander aimlessly in the middle of the night. On several occasions he disappeared for a few days. Questioned as to his whereabouts and as to the reason of his conduct, he could not give an adequate explanation. He was observed very frequently to burst out laughing without the least provocation. His mother happened to fall down the stairs and sustained a concussion of the brain. She was unconscious for many hours. The patient witnessed the accident, but manifested no grief. He remained impassive and indifferent. The next day, however, he inquired about his mother's condition and became quite solicitous. He advised keeping her warm and having a physician to treat her. This awakening of sympathy was not deep enough and lasted but a couple of hours. The condition of indolence and apathy to his surroundings and to himself soon returned. Rapidly he developed hallucinations. He was found frequently at night and sometimes during the day with his ear close to the wall listening attentively and frequently becoming agitated while listening. Suddenly he would jump away from his position and run to the other wall and assume a hostile and threatening attitude as if ready to meet an attack of an enemy. Sometimes he would speak loudly, using profane language, swearing and cursing, keeping up his aggressive position. Two weeks later he apparently developed visual, in addition to the auditory, hallucinations, as he was seen to run aggressively from one part of the house to the other. He soon developed delusive ideas. He accused his mother and sister, also the attendant, of conspiring against him, of sending some persons to torture him and to threaten him. All this was true, he said, because otherwise he would not have heard so persistently those voices day and night. In spite of his apparent preoccupation and concern about the voices, as soon as stranges would call and approach him he would fall again into a state of apathy and would hardly reply to questions asked. If at times he would answer, the replies would be utterly absurd. He would frequently be unable to recognize his own people or old friends. Soon he developed a great desire for writing. He remained in his room for hours and would write incessantly. While his papers showed considerable confusion, nevertheless some expressions denoted a tendency to think of things and events in an expansive manner. He frequently mentioned "hundreds of banks"; "rows of houses"; "the great personages of England"; "like Napoleon I," "to conquer a hemisphere"; "to convert the whole world." Frequently were found such expressions as: "I have just heard them say they will come again tonight and pull all the wires out of me." For many months the hallucinations predominated in the entire morbid picture. He was given two intraspinal treatments with neosalvarsanized serum at an interval of two weeks. His condition as regards the hallucinations had, at first, improved, in that these occurred less frequently and with less intensity. The general intelligence showed some amelioration. He commenced to show less disinterestedness when being addressed, and began to take the initiative in asking questions. However, the improvement did not continue long. The patient soon returned to his former mental condition. Moreover, from this time on, the enfeeblement became gradually deeper, and catatonic phenomena became manifest. Negativism, stereotyped acts and expressions, resistiveness, were all present. The delusive ideas were no more in existence. The hallucinations, however, persisted, but with less conspicuousness than formerly, probably because of the accentuation of the dementia.

In this, as well as in the two other cases of the group, we observe an improvement in the hallucinatory phenomena following the antisyphilitic treatment, also a prolonged improvement in the general mentality in two cases and only a brief amelioration in one case.

The problem before us is whether it is justifiable to consider as a nosologic entity a dementia praecox type of syphilitic origin, or can syphilis per se create such a syndrome? In my three cases I found some of the features emphasized by Kraepelin. I found the lack of depth in the delusional ideas. The latter were not obstinately persistent. The hallucinations were unusually persistent and most conspicuous. There was not a complete loss of affectivity throughout the entire course of the disease. The catatonic manifestations became manifest only toward the end in the last case and were totally absent in the other two cases. It seems, therefore, reasonable to contend that syphilis is capable of creating a *syndrome* resembling that of dementia praecox. On the other hand, the deviation in the typical manifestations, and in the course of the affection, leads one logically to admit another presumption, namely, that the persons thus affected are potential praecox men, who would have developed the disease in spite of syphilis but in whom the syphilitic infection introduced certain modifications such as emphasized by Kraepelin and observed in my cases. The latter contention appears to be most plausible by virtue of the fact that the clinical picture in such cases is not sufficiently typical of the classical dementia praecox on a constitutional basis.

Another type of cases in my series is seen in the group of involution melancholia. In both cases we find a number of symptoms characteristic of the disease under this title. The patients were middle-aged women and married. One had had five children, all of whom died while young of diseases difficult to determine from the histories given by relatives. The other patient had had four miscarriages and had one living child. Both gave positive Wassermann reactions on blood serum on two different occasions. The clinical pictures in both cases consisted of the usual depression with a state of anxiety, insomnia and anorexia. A state of self-blame in one case for not being sufficiently religious, in the other for masturbation in younger life, were the only delusional ideas. Both presented also marked auditory hallucinations; both heard the voice of the Lord saying they would pay severely for their sins and their families would suffer for the same reasons. The peculiar feature of the hallucinations lies in their transient but frequently repeated occurrence. For days at a time the hallucinations would be totally absent, and then would suddenly reappear, especially at night. They would then be accompanied by severe headache and a slight rise of temperature. A lumbar puncture during the hallucinatory periods would reveal a lymphocytosis of the spinal fluid, namely, twenty-five and forty cells in the respective cases. It was evident that the periodic hallucinatory condition with the headache was due to an acute meningeal reaction. Both patients had, respectively, two and three intraspinal injections of neosalvarsanized serum, and improved considerably. As the treatment could not be continued, the former condition returned in both cases. One patient eventually committed suicide, the other is at present in a state of dementia. At the onset of the disease both patients presented a mild state of depression, which, together with a positive Wassermann reaction, naturally led to the diagnosis of an oncoming paresis. Such was the opinion on one of the two cases as expressed by a competent neurologist. Subsequent events showed that at no time were there physical signs, neither was there present the mental deficit characteristic of paresis. The characteristic delusional ideas, together with the state of depression, which grew progressively deeper with the absence of dementia for a very long time, all spoke in favor of melancholia. As to the influence of syphilis, it seems to me highly plausible to assume the same position which was taken by me in discussing the paranoid group of cases, namely, that while the two syphilitic middle-aged women suffered from melancholia, nevertheless, it is difficult to associate the mental affection with syphilis as effect and cause. In all probability, syphilis acted here merely as a modifier of the typical course of melancholia. One cannot assert with any degree of definiteness that syphilis per se is capable of creating such a characteristic clinical picture as melancholia.

The last group of my series consists of three cases in which no characteristic symptom of the classical psychoses could be found. If we exclude the paranoid and manic-depressive cases which may or may not present forms of cerebral syphilis, the latter will embrace those cases in which there will be present a great variety of mental manifestations directly connected with and dependable on syphilitic infection. In spite of this multiplicity of symptoms, there are, however, certain special elements which are constantly present and which may be considered almost pathognomonic of cerebral syphilis during its tertiary period. They are a confusional state and a pseudodemented state. The latter is the most frequent of all. It is characterized either by a mental hebetude, stuporous attitude, amnesia, deficient orientation in time and space, or else by an expansive attitude, optimism, euphoria and a psychic overactivity, to such a degree that it may assume the appearance of absurdity and even childishness. Delusions may or may not be present in either of these states. Syphilis of the brain in its broadest form covers a number of affections in which there is an organic involvement of the cerebrum. Besides the mental distubances there may be also attacks of hemiplegia or monoplegia, of aphasia, or of epileptiform convulsions. They all present no special difficulty of recognition, especially if the blood serum or the spinal fluid gives a positive Wassermann or Lange reaction. The therapeutic test is also of great value, as considerable improvement is obtained from antisyphilitic treatment. Some diagnostic difficulty is observed in cases which present some of the manifestations of paresis, so that for a long time considerable hesitation is experienced in formulating a diagnosis and giving a prognosis. The following three cases may be briefly presented as an illustration of such a difficulty.

Case 9.—A woman of 39 who had three children living and had had four miscarriages was admitted with a very severe headache to the Douglass Hospital. The Wassermann test proved to be negative in the blood serum and positive in the spinal fluid. The cellular count was thirty-five. At first mentally clear, she gradually developed a depressive state, during which she spoke and acted in a very slow manner. Her replies to questions were much delayed and her memory, especially, became affected. She was unable to tell the number and names of her children, how long she had been in the hospital, or how long she had been married. She could not tell correctly the day of the week, the date or the year. She could, however, converse on the weather, could criticize correctly the food, the behavior of the nurses, etc. She was frequently seen muttering some words quietly as if she were conversing with some one. Evidently she had auditory hallucinations. While in the hospital she had two attacks of aphasia of brief duration, one lasting five and the other three days. Among the somatic symptoms the following may be mentioned: The pupils were unequal, but both reacted well to light; the patellar tendon reflexes were increased; the speech was somewhat hesitating. In the presence of such a symptomatology, paresis was the diagnosis first thought of. But the following essential elements spoke against paresis: While her affectivity was depressed, and in spite of the fact that she did not fully realize the gravity of her affection, she nevertheless appreciated the fact that she was ill, and frequently inquired about her discharge from the hospital. She obeyed all the orders of the nurse, and was quiet and undisturbing. There were no delusive ideas at any time. The speech disorder was not distinctly paretic, although it was somewhat hesitating. There was no tremor, and no ataxia was evident at any time. The intraspinal treatment with neosalvarsanized serum proved to be most beneficial. The improvement was very noticeable in the psychic sphere. Amnesia and orientation have greatly improved. She is still under observation, and at this date she has had five injections. The few somatic symptoms have entirely disappeared, namely, speech, pupils and increase of reflexes.

CASE 10.—A man, aged 41, with a history of syphilis contracted twenty years ago, was admitted to the Douglass Hospital. The Wassermann reaction was positive in the spinal fluid and in the blood serum. On admission he complained of insomnia and frontal headache, but had a smile on his face and a very cheerful countenance. In talking to him over his past life, one is struck by a slight confusion in his sentences. His memory is defective. He cannot recall the name of his last employer, for whom he worked several years; nor could he converse on important topics of the day. In giving dates he made gross mistakes. Asked how long he had been in the hospital, again he answered very inaccurately. What was particularly interesting was the ability of self-criticism. He realized that he was wrong, that he made mistakes, that there was something "wrong with him," to use his own expression. He often laughed at his answers, saying that he felt he was making errors, but he could not help it. At times he was unusually jovial, and spoke of great undertakings, of being on friendly terms with important personages, of being very happy and of wishing for nothing. At the same time he mentioned seeing spirits at night when he said his prayers, but those hallucinations occurred only occasionally. A somatic examination revealed increased knee-jerks, unequal pupils, but responding well to light and accommodation. At times there was nocturnal incontinence of urine. Treatment with neosalvarsanized serum gave prompt relief. After the second injection the confusional element disappeared, the amnesia improved greatly and the euphoria became less pronounced. He is still under observation at his home in another state, whence he sends me communications about his death. They are all free from incoherence and the ideas are expressed in a coordinate and logical manner.

In this case the entire picture of the affection suggested at first paresis, but the evolution of the symptoms, the absence for a long time of characteristic physical symptoms, the rapid improvement and especially the nature of the mental manifestations all were against the diagnosis of paretic dementia.

CONCLUSIONS

An analysis of the cases described in this study tends to show that while the mental disturbances, during the secondary stage of a syphilitic infection, could be considered with a great degree of certainty, as directly dependable on syphilitic toxins, the same degree of certainty cannot be entertained with regard to a direct relationship of psychosis developed during the tertiary period of syphilis. In the former, the mental manifestations are in all analogous to those which we observe in toxi-infectious states from any origin. The confusional and delirious conditions, as well as the hallucinations, ran parallel with secondary manifestations and with fever. When the latter disappeared the former commenced to improve. Besides, the antisyphilitic treatment had a very manifest and favorable effect on the mental phenomena. In the other series of cases we find various psychoses which developed many years after the initial infection and which in all respects presented the typical pictures of classical psychosis, such as Korsakoff's syndrome, manic-depressive insanity, melancholia and dementia paranoides. Great difficulty is encountered and no definite opinion can be formed with regard to a direct relationship between the psychoses and the infection which occurred many years previously. On the other hand, it has been observed that those psychoses in syphilitic individuals presented some modifications which could justly be attributed to the influence of syphilitic toxins. In the light of our present knowledge we are not warranted as yet to claim for syphilis the ability to create per se the well established forms of insanity which we observe without a syphilitic infection. The literature on the subject is very meager, and a considerably larger number of carefully collected records will be necessary to enable us to establish in a more definite way a causal relationship of syphilis to psychoses. For the present, no final claim can be made as to a type of mental disease characteristic of syphilis. On the other hand, from the observations which we possess we are not authorized to reject entirely the possibility of psychoses being the result of syphilis.

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ABSTRACT OF DISCUSSION

DR. E. E. MAYER, Pittsburgh: Does any one doubt that the same psychotic symptoms may be due to different causes, toxic, psychogenetic or inflammatory? Does any one doubt that a patient with paresis may have another type of psychosis also? Perhaps I did not follow Dr. Gordon's reasoning closely; however, it is always a mistake to establish a diagnosis if by doing so we ignore the possibility of another syndrome being present which is not directly due to the same causal agency. It is this faulty judgment which I gather Dr. Gordon is speaking against. But again, what psychiatrist does not know that his argument is true without it being necessary to cite a multiplicity of cases to prove it.

DR. C. R. WOODSON, St. Joseph, Mo.: There is a syphilitic condition unlike that of paresis in which patients who do not recover live many years. I remember cases twenty-five years ago, before the Wassermann reaction or salvarsan treatment were known. A man came under my observation confused and depressed, with symptoms of cerebral syphilis. I placed him on mercury and mercury inunctions, with 1,000 grains of potassium iodid daily for two or three months. He made a satisfactory recovery and remained well. I have seen him twice yearly for twenty-five years. One of our surgeons had a syphilitic patient who had not been treated vigorously. He came to the hospital with pronounced insomnia and in a maniacal condition. Large doses of iodids, 1,000 grains daily, with mercury were given, and he made a splendid recovery. Many patients come into the hospital with a positive Wassermann test, monoplegia and other symptoms of cerebral syphilis. In some atypical cases it is hard to diagnose a case of paresis from syphilis of the central nervous system. I do not believe paresis is curable. I have seen marked temporary improvement, followed by death from some intercurrent affection, or relapse and death from paresis.

DR. CHARLES R. BALL, St. Paul: It is difficult for the physician in dealing with syphilis to differentiate between symptoms due to syphilis and symptoms caused by other diseases which they may have and which have no connection with their syphilis. Because a patient has had syphilis is no reason for regarding him as immune to other diseases. A syphilitic is just as susceptible to a psychosis or neurosis, after having had syphilis, as he was before he had it, and perhaps more so, because the syphilis itself tends to make him more introspective. Dr. Gordon brings this point out clearly in his paper. We must be quick to distinguish in syphilitics those mental disturbances which are caused by syphilis and those which occur incidentally in connection with it. In making this distinction the serobiologic reaction will be found invaluable.

Recently I had a patient with a typical simple melancholia; fifteen years before he had suffered a similar attack; twelve years previously—three years after his melancholia—he contracted syphilis. The serobiologic reactions were all negative. In spite of this the patient insisted on connecting his syphilis with his present trouble. He would take no medicine whatever except mercury in some form. He finally left me to place himself under the care of some one who would administer mercury to him in heroic doses.

Dr. Alfred Gordon, Philadelphia: Syphilitic individuals, in spite of the syphilis, and not on account of it, may present symptoms resembling ordinary psychoses. They may present a picture of manic depressive psychosis, dementia praecox and others. The syphilitic patient may have all sorts of diseases, and when we do investigate for syphilis and the tests are positive we can improve the patient's condition. One often finds, on close observation, modifications of classical symptoms, and this is due to some modifying factor such as syphilis. I have no illusions as to the cure of syphilis of the central nervous system. I am not optimistic to that degree, but I am far from convinced that the last word has been spoken. I think we can often improve the condition. While my paper is largely technical, there is a practical side, namely, the findings of modifications in the typical clinical pictures and thereby a possibility for improvement by antisyphilitic remedies.

INTRAVENOUS GLUCOSE INJECTIONS IN SHOCK*

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In accordance with a prevailing opinion, the low blood pressure in "shock" is associated with a diminished effective volume of blood in the vessels, and the two factors constitute in themselves essential parts of the shock mechanism. On this assumption, benefits should result from procedures having the effect of holding water within the vessels. In normal individuals it is possible to accomplish this by effecting an entrance of glucose into the blood at appropriate rates sustained for sufficient lengths of time. Marked hydremic plethora and striking increases of the systolic blood pressure may thus be produced, and the present study has shown that the mean arterial pressure may also be elevated in this way. Glucose is, moreover, a food; it is capable of increasing the power of involuntary muscle contractions, elevating the total metabolism, combating at least one type of acidosis, and restoring depleted glycogen reserves. Has it a value in the treatment of cases of shock?

During the past two years, Woodyatt, with Sansum and Wilder, has studied the physiologic effects of sustained intravenous glucose injections at known rates, and applied the method to several clinical conditions, including two cases having features of shock. Favorable results in these cases made it appear desirable to study a longer series under conditions permitting more exact observations. This was not possible with the available clinical material, and it was decided to test the principles in cases of experimental shock in animals. Erlanger and his associates have during the summer performed some sixty experiments on shock in animals with special reference to the circulatory phenomena and the vasomotor mechanism. A large number of records for control purposes and a perfected technic were thus available. The primary purpose of the work here reported was to ascertain how the symptoms of experimental shock in dogs might be influenced by intravenous glucose therapy. Incidental observations were made on the effects of salt solutions, salt and carbonate solutions, and epinephrin. The work was done in eight days, and no attempt is made to give this report the character of a completed study. The possible differences between the conditions induced in dogs and that of shock in human cases is appreciated, as also the fact that the slow intravenous injection of glucose in postoperative conditions is not a new procedure.[1]

PHYSIOLOGIC PRINCIPLES

When a single dose of glucose is injected into a peripheral vein, there is a temporary increase of the total quantity of sugar in circulation. The injected sugar passes rapidly out of the blood into the tissues. During its stay in the vessels, the blood volume rises and a state of hydremic plethora develops, owing doubtless to the binding of water by the extra glucose in the vessels. This is shown by a fall in the hemoglobin percentage, and a coincident fall in the blood sugar percentage following an initial rise. These facts were demonstrated by Brasol[2] in 1884, and confirmed and amplified by Biedl and Kraus,[3] Starling,[4] Kleiner and Meltzer, and others. Similarly during the period of absorption following the alimentary administration of glucose there is at first a rise but later a return to the normal of the blood sugar percentage, and simultaneously with the latter a fall in the hemoglobin percentage.[5] In shock cases it is frequently impracticable to secure the entrance of glucose into the blood through the alimentary tract, nor is the subcutaneous injection of glucose a harmless clinical procedure. If glucose is injected into the peripheral venous blood of a normal resting (unanesthetized) individual at or below the rate of 0.8 to 0.9 gm. per kilogram of body weight per hour, the injection may be sustained in most cases for hours without causing glycosuria.[6] With injections of 0.9 gm. or more of glucose per kilogram per hour, glycosuria develops, and the rates of sugar excretion then bear definite relationships to the rates of injection. The higher the absolute injection rates, the higher the absolute rates of glycosuria.

During sustained intravenous injections at or below the tolerance rate, glucose passes from the blood into the tissues and there undergoes chemical change (polymerizations, oxidations, etc.) at the same rate as that of injection. There is no material accumulation of glucose itself in the tissues. Injections at subtolerant rates therefore have the effect of increasing the quantity of glucose in the blood without producing any considerable increase of the glucose in the tissues. The result is a disproportionate increase of the power of the blood to hold water, and a state of hydremic plethora develops and presumably persists as long as the injection is sustained. The water held by the blood must come from the tissues or from the injection site or both. If the water injected with the glucose is not sufficient to satisfy the glucose in the blood, some water will flow into the blood from the tissues. When the glucose injection is stopped and the last of the injected glucose passes into the tissues, the water previously held in the blood is to a large extent discharged suddenly into the urine. This whole phenomenon differs essentially from that obtainable with inorganic salt solutions, because such salts when injected also pass into the tissues, but when once there are not destroyed. There is therefore the possibility of salt accumulations in the tissues holding water there, and in part counteracting the effects of the salt in the blood stream.

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[1] Kausch: Deutsch. med. Wchnschr., 1911, **37**, 8.

[2] Brasol: Arch. f. Physiol., 1884, p. 211.

[3] Biedl and Kraus: Wien. klin. Wchnschr., 1896, **9**, 55.

[4] Starling: Jour. Physiol., 1899, **24**, 317.

[5] Compare Gilbert and Baudouin: Comp. rend. Soc. de biol., 1908, **65**, 710. Fisher and Wishart: Jour. Biol. Chem., 1912, **13**, 49.

[6] Woodyatt, R. T.; Sansum, W. D., and Wilder, R. M.: Prolonged and Accurately Timed Intravenous Injections of Sugar, The Journal A. M. A., Dec. 11, 1915, p. 2967. Wilder, R. M., and Sansum, W. D.: d-Glucose Tolerance in Health and Disease, Arch. Int. Med., February, 1917, p. 311. Sansum and Woodyatt: Jour. Biol. Chem., 1917, **30**, 155.

With sustained intravenous glucose injections at rates higher than 0.8 to 0.9 gm. per kilogram per hour, the glucose utilization fails to keep pace with that of injection and the tendency is toward some accumulation of unchanged glucose. If the kidneys are functioning actively this glucose appears on the urinary side of the renal membrane and tends to collect water in this locality, probably for the same reason that glucose in the blood produces hydremia.[7] This tendency is expressed as polyuria. Now if the diuresis exceeds the rate of water administration, water will flow from the tissues to the blood and thence to the urine, and hydremia will be sustained, as long as the water supply is adequate. But if the kidneys do not function in this way, most of the unchanged fraction of the glucose injected remains in the body and tends to behave like a salt, causing accumulations of water in the tissues and body spaces wherever it may go. In shock cases the secretion of urine is likely to be impaired. Accordingly the most rational application of intravenous glucose injections in shock would appear *a priori* and on theoretical grounds to consist in long sustained uniform injections at subtolerant rates. Just what the tolerance limit will be in any pathologic condition cannot be stated. When the kidney function is impaired the rate of injection necessary to produce glycosuria cannot be used as a criterion. The most appropriate injection rate might be expected to lie within the normal tolerance limit at possibly 0.3 to 0.6 gm. of glucose per kilogram of body weight per hour. For a man weighing 50 kg. this would imply the injection of from 15 to 30 gm. of glucose per hour, corresponding to from 84 to 168 c.c. of 36 per cent. solution hourly, or twice these quantities of 18 per cent. solution. Although moderate accumulations of unchanged glucose in the body might do no harm or perhaps even prove desirable, it has been noted in the experiments on shock in dogs, produced by occluding the inferior cava, that a general hemorrhagic tendency supervenes when the administrations are excessive.

EXPERIMENTAL

The solutions injected consisted of chemically pure glucose in strengths of from 18 and 36 per cent., to which on occasions epinephrin was added, of 0.9 per cent. sodium chlorid, and of an alkaline saline solution, 0.3 per cent. anhydrous sodium carbonate in 1.4 per cent. sodium chlorid solution (Fischer's solution). Whenever possible the physiologic sodium chlorid solution was injected either just before or just after the glucose as a control to the direct volume effects of the latter. The injections were made centrally into the vena saphena at a practically constant rate by means of an apparatus devised by Woodyatt.[8] Continuous records were made of the pressure in the carotid artery by means of a mercury manometer. Dogs were used exclusively. They were anesthetized with ether. In some experiments the rate of secretion of urine was followed, a catheter being passed into the bladder for this purpose.

Only one experiment has been done on a normal animal. The glucose solution (36 per cent.) was injected for a period of thirty minutes at the rate of 0.8 c.c. per minute (1.78 gm. of glucose per kilogram per hour). The injection raised the arterial pressure, but not more than from 5 to 7 mm. of mercury. The pulse amplitude, however, increased quite appreciably, indicating the development of some plethora. The maximum effect seems to have been attained during the first five to ten minutes of the injection, and was maintained for ten or more minutes after completion of the injection. The slightness of the rise of the pressure in comparison with the considerableness of the increase in blood volume, indicated by the change in pulse amplitude, probably is to be attributed in part to a diminution in the viscosity of the blood, due to hydremia, and in part to vasomotor accommodation.

The animal was then bled to the extent of 150 c.c., and after the pressure had become constant, well below the normal level, glucose was again injected at the same rate, but for a period of twenty minutes. During the injection period the pressure rose from 107 to 120 mm. of mercury, and during the succeeding ten minutes it continued to rise, finally reaching 125 mm. of mercury. It then declined to 111 mm. of mercury in the course of the next thirty minutes. The pulse amplitude was increased. Salt solution injected at the same rate raised the pressure only 5 mm. of mercury, without appreciably changing the pulse amplitude.

It is inferred from this experiment that in normal animals the compensatory mechanism tends to hold the arterial pressure close to the normal level during the plethora determined by the glucose solution; but that when, as after hemorrhage, the efforts of a normal compensatory mechanism fail to hold the pressure up, the same hydremia results in a more marked rise of pressure.

The rate of injection employed in this experiment would lead in the unanesthetized dog to a glycosuria of some 0.5 gm. per 10 kg. per hour, and this would cease within fifteen minutes after the discontinuance of the injection. In this anesthetized animal, however, the injection caused a heavy long lasting glycosuria and a coincident hyperdiuresis of such a grade that in the course of the experiment more water was excreted by way of the kidneys than was injected into the circulation.

In six experiments the effect of the injection of glucose in different doses was followed after shock had been produced by temporary partial occlusion of the inferior vena cava.[9] Our previous experience with this method of inducing shock justifies the statement that when, after deocclusion of the cava, the arterial pressure eventually begins consistently to decline, this decline proceeds, almost invariably, without break until the animal dies, though the pressure at which the decline begins may be only 20 mm. of mercury below the normal level. Despite the fact that the arterial pressure rises quite appreciably with deocclusion, we are inclined to believe that the damage that has been done to the tissues during the period of occlusion is irreversible. That is to say, despite whatever may be done, the cells of the body eventually will fail to carry on the functions necessary to the life of the organism.

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[7] Sansum and Woodyatt (Footnote 6).

[8] Woodyatt: Jour. Biol. Chem., 1917, **29**, 355.

[9] Janeway and Jackson: Proc. Soc. Exper. Biol. and Med., 1915, **12**, 193.

In such an event, the only result that could be anticipated from any form of treatment would be but a temporary improvement of certain of the functions.

Our tests of the action of glucose were begun in that stage of the experiment in which the pressure begins consistently to fall. The persistence of heavy glycosuria in the normal but anesthetized dog for hours after a twenty minute injection at the rate of 1.8 gm. of glucose per kilogram per hour indicates that such a rate of infection in shocked animals which pass no urine must result in an accumulation of free sugar in the organism. The first intravenous dose at supertolerant rates must therefore give the clearest indications of what the injection of sugar is capable of accomplishing. In the table are collected the results of the first injections with the animals in shock. In evaluating the effect of the injections on the blood pressure, account must be taken of the fact that such changes as occur are built up on a pressure curve whose general tendency is to decline with time. In the construction of this table an attempt has been made to indicate this fact. For example, it is seen in the table that in Experiment 3, in which the greatest rise of pressure was recorded (from 55 to 100 mm. of mercury), the pressure at the start of the injection was practically stationary, presumably as a result of the action of salt solution injected immediately preceding the sugar injection; while Experiment 5, in which the smallest rise was recorded (from 72 to 76), was one in which the arterial pressure was falling quite rapidly at the time the glucose injection was started. The other pressure increases ranged between these extremes. On account of the difficulties just mentioned, the determination of the duration of the sugar effect on the pressure is not a simple matter. In at least two cases the maximum pressure is attained some time after the cessation of injection; and whereas in some of the other cases the maximum pressure is attained during the period of injection, the pressure curves are of such a form as to indicate that the effect is manifesting itself not alone during the whole of the injection period, but for some time subsequently.

RESULTS OF THE FIRST INJECTION WITH THE ANIMALS IN SHOCK

Experiment Number	Normal Mean Carotid Pressure	Pressure at Time of Injection[*]	Injection Period, Min.	Pressure Rise		Pulse Amplitude Increases		Dosage				Action Subsequent to Injection	Remarks
				To Mm. Hg	In Min.	From Mm.	To Mm.	Per Kg. per Hour, Gm.	Percentage Solution	Rate of Injection, C.c. per Min.	Injection Period, Min.		
1	159	51 and falling	73.	60	45	1.5	3.0	0.57	18	1.0	73	The pressure is falling during the last 20 minutes of injection	Sugar injected immediately after salt solution, which had kept the pressure constant
2	140	64 and falling	68	96	68	3.5	4.5	3.7	36	1.85	68	Pressure immediately falls slowly, and, after 10 minutes, rapidly	Sugar injected immediately after salt solution, which had failed to maintain the pressure
3	117	55 and stationary	25	100++	45++	4.0	5.5	3.6	36	2.0	25	It would appear as though this animal was coming out of shock; the rise of pressure stopped only when the cava was again occluded	Immediately after 20 minutes salt injection which raised pressure 4 mm.
4	195	61 and falling	25	70	[†]	5.0	8.0+	2.2	36	1.0	25	....	A previous salt injection had temporarily raised the arterial pressure 4 mm. Hg
5	142	72 and falling quite rapidly	23	76	14	6.0	6.5	3.0	36	2.0	23	....	Pressure can be raised only by epinephrin despite the considerable increase in pulse amplitude by subsequent sugar injections
6	110	66 and falling	30	88	35	4.0	7.0+	4.0	36	2.0	30	Pressure falls rapidly after 5 minutes elapse	
8	122	78 and falling rapidly [‡]	25	86	45	5.0	8.0+	3.7	36	2.0	25	Pressure falls rapidly	

[*] The pressure usually is uninfluenced by the sugar injection until from five to ten minutes have elapsed. This is the pressure at the moment the injection begins to cause the arterial pressure to rise.

[†] This was immediately followed with a stronger solution of sugar for seventeen minutes by which the pressure was raised only to 62 mm. Hg. Then epinephrin was added to the sugar. This raised the arterial pressure to 97 mm. Hg; but when the epinephrin was withdrawn, while the *sugar injection* was continued, the pressure fell in the course of twenty-nine minutes from 97 to 49 *mm.* Hg.

[‡] Salt solution for twenty-five minutes did not appreciably modify the pressure curve. Ten minutes later, while the pressure was *rapidly* falling, sugar injection was begun. The pressure continued to fall but at a decreasing rate, and had just begun to rise at the end of the twenty-five minute period of sugar injection. As indicated, it continued to rise for twenty minutes.

The table also shows the effect of the sugar injection on the pulse amplitude. This is invariably increased by the injections, and the persistence of the sugar effect is brought out more clearly by the changes in pulse amplitude than by the changes in pressure. Thus in Experiment 6, whereas the mean pressure begins to fall five minutes after the cessation of injection, and in thirty minutes has returned to its previous level, the pulse amplitude at that time has not nearly declined to its previous value. This greater persistence of the effect on the pulse amplitude than that on the arterial pressure is seen best, however, after the second and third injections.

The dosage of glucose has ranged between the extremes of 0.57 gm. per kilogram per hour and 4 gm. per kilogram per hour, that is to say, between a so-called subtolerant dose and one five times exceeding the tolerant dose. All injections resulted in a rise of pressure, which invariably was much greater than that caused by the control injection of salt solution, which often, indeed, gave an inappreciable response. Owing, however, to the difficulties mentioned, it would take a much larger series of experiments than we have performed to determine the optimum dose of glucose.

After a beginning has been made in the induction of shock by occlusion of the cava, urine secretion ceases despite the injection of sugar in doses which, in the normal animal, cause a marked diuresis. Urine was not secreted even when the alkaline hypertonic salt solution was injected.

A few tests have been made, but usually quite late in the course of the experiments, of the effect on the arterial pressure of injecting an alkaline saline solution. These tests were made only casually, and no hard and fast conclusions can be drawn from them. So far as we have gone, however, at the rate of injection employed, no obvious effects could be discerned.

We also have occasionally combined epinephrin, in concentrations ranging from 1:100,000 up to 1:25,000, with the glucose solutions. These injections also have been made late in shock. While they raised the pressure further, and possibly increased the pulse amplitude more, than the injection of simple glucose solutions, their effect was very transient and they seemed to leave the pressure at a lower level than it would have reached in the same time if nothing had been injected.

In only one case have we succeeded by the injection of sugar in turning a falling pressure into a rising pressure tending to attain the normal level. The animal in which this occurred was particularly resistant to the effects of occlusion of the cava. Whereas a two-hour partial occlusion of the cava in our experience ordinarily suffices on deocclusion to leave the arterial pressure well below the normal level, and to start the pressure on a downward course within forty or fifty minutes, in this case the arterial pressure returned to the normal level after deocclusion within twenty-five minutes. After a second period of occlusion lasting forty-five minutes, the arterial pressure was still rising fifty-five minutes after deocclusion. The same was true after a third period of occlusion. It was only after the fourth period of occlusion, which lasted one and three-quarter hours, that the arterial pressure after deocclusion started on a downward course. It was then, after a preliminary test injection of saline which held the pressure practically level, that the sugar was injected. The pressure rose from 55 to 90 mm. of mercury during the injection period of twenty-five minutes, and continued to rise in the after-period, finally reaching 100 mm. of mercury, and it was still rising when, as it was believed that the animal had recovered from shock, the cava was again clamped in order again to reduce the animal to shock.

Previous experience in the production of shock indicates that when it is induced by temporary partial occlusion of the inferior vena cava, vasomotor tone, in the stage in which we have made the first sugar injections, is either below normal or at the lower limit of normal. In order to determine whether or not the difficulty in obtaining lasting improvement as a result of the injection of sugar is attributable to the damaged state of the vasomotor mechanism, in one experiment the effect of sugar injection has been tested in shock produced by temporary partial occlusion of the descending aorta. In shock thus produced, we judge from experience that the vasomotor tone, at the stage with which we are now concerned, is either normal or above normal. The experiment ran quite smoothly; but here again the action of the sugar, while quite distinct, was as ephemeral as in the majority of our experiments.

In this experiment, urine secretion stopped shortly after the aorta had been clamped, and none was formed until about two hours had elapsed after deocclusion, when, apparently under the stimulus of the sugar injection, 1 c.c. was passed. This is the only instance in which urine was formed after the production of shock in this series of experiments. Macroscopically the urine did not contain blood.

One of the most interesting phenomena brought to light by this series of experiments, and seen best after several injections have been made, is a decline of the pressure, subsequent to the injection, to a level well below that obtained previous to the injection, despite a pulse amplitude which is higher under the low pressure after the injection than it was under the higher pressure preceding the injection. The increased pulse amplitude undoubtedly is a measure of the increase in blood volume. Presumably, therefore, the pressure is lower after than before the injection, despite an increase in blood volume. This condition probably is made possible through a diminution in the vasomotor tone and a decrease in the viscosity of the blood, which together defeat the tendency of the plethora to increase the arterial pressure. It suggests that a relatively inactive vasomotor mechanism responds in the same way to its adequate stimuli as does the normal mechanism. The normal center is, so to speak, keyed to hold the arterial pressure at the normal level. The damaged center is keyed to hold the pressure at a level below the normal. And if the activity of the damaged center is constantly diminishing, the level at which it tends to hold the pressure will also constantly diminish. The reactions of the center, therefore, to increased blood volume, no matter what the new pressure normal may be, will always be such as to return the disturbed pressure to that normal. If this is the case, the combination in the late stages of shock of an increased blood volume with a lower pressure would be accounted for.

Attention should be called to the tendency exhibited by overdoses of glucose solutions to diminish the coagulability of the blood. As a result of this action, wounds which have ceased bleeding may become covered with an ooze of blood, sometimes quite considerable in amount, which remains fluid for some time. In none of our experiments was this secondary hemorrhage serious, but it is a danger which should be kept in mind when sugar injections are employed in the treatment of shock in the wounded.

SUMMARY

1. Glucose injected intravenously at rates varying between 0.57 and 4 gm. per kilogram per hour for from twenty to sixty minutes into anesthetized dogs reduced to a state of "shock" (by partial temporary occlusions of the inferior cava or aorta) has been observed uniformly to increase the mean arterial pressure.

2. The injections have uniformly produced a marked increase in the pulse amplitude, indicating a condition of plethora.

3. The increase in pulse amplitude has usually been more striking than the increase in arterial pressure.

4. In one case the increase in pressure determined by the injection of glucose continued after the cessation of the injection until the pressure was approximating the normal.

5. A subtolerant dose has raised the arterial pressure and increased the pulse amplitude as effectively as many of the injections made at more rapid rates.

6. With the more rapid injections, a marked hemorrhagic tendency may develop in animals in this condition.

7. No other palpable deleterious effects were observed.

CONCLUSION

On theoretical and experimental grounds supported by some clinical evidence, it would appear that intravenous injections of glucose at appropriate rates are of distinct benefit in certain phases of shock.

SYMPTOMATOLOGY OF THE NERVOUS SYSTEM

IN CHRONIC INTESTINAL TOXEMIA *

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Present medical progress tends toward diminishing the number of disease entities rather than toward their multiplication. In no field is this more strikingly apparent than in the newly found and rapidly developing relationship between mental and nervous conditions and disturbances of the gastro-intestinal tract.

The symptomatology referring directly to the intestinal tract is not within the scope of this paper. However, it is difficult to find any case in which, on close investigation, symptoms referring directly to the intestinal tract are absent. The error in diagnosis as to the fundamental condition can frequently be explained by the fact that the gastro-intestinal disturbances are so often considered secondary to a disturbed nervous system, when in reality the opposite is true.

As an example of one of the commonest misapplications of diagnosis we mention neurasthenia. It is perfectly true that we may have a neurasthenia brought on by causes not connected directly with the intestinal tract, and in these a functional disturbance of the stomach and intestine may follow. Church and Peterson mention that neurasthenia may be caused by organic conditions such as phthisis, Bright's disease, diabetes, gout, rheumatism, and uremic and toxic states generally. The fact that chronic gastro-intestinal conditions are almost invariably followed by neurasthenia of differing intensities is not mentioned.

For purposes of simplification we have separated the symptomatology of the nervous system in connection with chronic intestinal toxemia into four classes, namely, cases involving (1) the mental system, (2) the sensory system, (3) the motor system, and (4) the sympathetic system. These classes of symptoms may occur separately or in combination, usually the latter, so that we can designate them only according to the predominant symptoms. It would be impossible to say why the toxin resulting from these intestinal conditions should have a selective affinity for any one part of the nervous system, just as it is impossible to ascribe reasons for the localization in other toxic states resulting from tuberculosis, diabetes, gout and syphilis.

It is a significant fact that in practically all of the cases considered in this article the nervous manifestations have either cleared up or have been markedly improved by treatment directed toward the intestinal toxemia. A great many of these patients have been treated by the usual therapy for disorders of the nervous system, without result. This is not in the nature of positive proof, but is very strong evidence as to the etiology of the disturbances of the nervous system in these cases.

In considering the cases exhibiting mental symptoms, we have divided them into two groups, intellectual and psychic. Under the intellectual group we find sluggishness of mentality, dulness and stupidity, loss of concentration, loss of memory and mental incoordination. In the psychic group are included irritability, lack of confidence, excessive and useless worry, exaggerated introspection, hypochondriasis, phobias, depression, melancholic states, obsessions, delusions, hallucinations, suicidal tendencies, delirium and stupor. Of 518 cases studied for this paper, 201 exhibited irritability, 317 depression, 4 obsessions, 1 dual personality, 5 hallucinations, 4 delusions, 12 hysterical coma, 74 deep melancholia, etc.

There is no group of mental symptoms that can be said to be diagnostic of intestinal toxemia. The mental symptomatology is rather complex and may assume any one or more of the symptoms of a primary mental condition, or of syphilis. These must necessarily be excluded. As an example of mental disturbance illustrating both intellectual and psychic symptoms, the following case history is of interest:

REPORT OF CASES

Case 1.—*History.*—Miss L. E., aged 46, a schoolteacher, had been constipated sixteen years following an attack of nervous prostration. The symptoms, which began at this time and had become progressively worse up to the time when she was first seen, were intense headaches, hemicranial in type; she felt as if she had two brains, one side normal and the other side abnormal. Severe melancholia, with violent outbreaks, which was progressive, kept the patient from teaching. Twelve years ago curettage was done. Eight years ago, after a diagnosis of uterine fibroids, a hysterectomy and appendectomy were performed with no improvement. For five years she took morphin, in increasing dosage, for relief from pain in the head. She always felt uncomfortable in the abdomen, especially when standing. Ability of mental concentration was partially lost. She was much depressed.

Examination.—The roentgen ray revealed a water-trap stomach with one third retention at seven hours. The small intestine was intensely rapid. Meal was in the colon in one and three-fourths hours. Both flexures and transverse colon were very low. The urine was constantly normal except for a large excess of indican. Blood pressure for many years was around 240. The Wassermann reaction was negative. Blood analysis, chemically, showed low urea nitrogen, uric acid and blood sugar. Slightly high freezing point of serum. Subsequent chemical blood analysis showed a similar picture with the exception of a high uric acid retention. Examination of the optic fundus revealed a normal picture. This patient was in a deplorable condition, mentally and physically, and life had become a burden to her. She could work only with frequent long periods of rest.

Treatment.—She was operated on by Drs. Draper and Lynch in August, 1914. The pylorus and duodenum were normal except for some slight thickening. The gallbladder was thickened and contained one stone, the size of a marble. The stone was removed. The transverse colon showed many diverticula, one of which was solidified. This was removed. The sigmoid found bound down in a scar from a previous operation was freed. A partial colectomy (developmental reconstruction) was done. End-lateral anastomosis was effected. A partial Coffey operation was limited to three suspensory sutures to the left. There was no postoperative shock.

After an initial improvement in all symptoms the patient relapsed and came to see Dr. Satterlee four months later. She had returned to work at school against all advice. She was incapacitated again. She was sent to a sanatorium for rest, and given autogenous colon bacillus vaccine. Doses were given weekly, gradually increasing in amount. There was rapid improvement. After a short time she returned to work and remained there while receiving weekly doses of vaccine and general supervision regarding diet and hygiene. One year later the patient said that "although formerly a burden to do a pleasure, it is now a pleasure to do a burden." She was feeling much better and treatment was stopped. Six weeks later she relapsed again and returned for treatment. This caused improvement once more. She continued to alternately improve, stop treatment and relapse until January, 1916, when she had a severe relapse and again went to the sanatorium. She became very melancholic and threatened suicide. She had intense pain in the left side of the head and was very nervous and hysterical. Vaccine gave intense and severe reactions. In March, 1916, she felt so well, and had for the last month or two, that she thought she should be again dismissed from treatment. At the present time the patient is still teaching and feels well unless tired, when she has a rise in blood pressure and a moderate amount of depression.

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COMMENT

The interesting features in this case are the excellent results, especially in the mental condition, after removal of the cecocolon, the subsequent diseased condition of the remainder of the colon, and the good results from the administration of the autogenous colon bacillus vaccine. These three things point very strongly to a diseased colon, and the colon bacillus as the causative factors in this patient's condition. The high blood pressure seemed to be partially dependent on the intestinal toxemia. The former was always increased after prolonged fatigue, and at the same time the toxemia increased. The chemical blood analysis and the examination of the optic fundus showed a probability of lack of any advanced renal changes.

The following case history is an example of the predominance of psychic phenomena:

Case 2.—*History.*—Mrs. S., aged 34, with negative family history, had had three children. There was a history of typhoid and erysipelas. For five years previous to being seen she had been much troubled with gas, pain in the epigastrium and constipation, with extreme tenderness at times to the left of the umbilicus. While on her feet she is comparatively comfortable, but pain begins when lying down. She has the sensation in the early morning hours of being tightly gripped in the left side as in a vise. There is no nausea or vomiting. The patient has lost 40 pounds in the last five years. She has extremely nervous spells and wants to laugh and cry. The desire is hardly controllable at times. She is very sleepless at intervals and when so keeps the whole family awake. Her husband is sometimes at his wit's end to know how to control and keep the patient calm. When very nervous she becomes hysterical and disturbs the neighbors. She screams, laughs loudly, and one time ran down stairs and into the street in her night dress. A roentgen-ray examination revealed a water-trap stomach, and ptosed, sluggish colon. Lavage at one time showed eight hour residue in the stomach.

Diagnosis.—Chronic intestinal toxemia, water-trap stomach and ptosed sluggish colon. After treatment by diet, hydrochloric acid, massage, etc., the patient was operated on. The pylorus was high, fundus low. A long adhesive appendix with constriction was removed. Colon and stomach suspension was done. Seven months later constipation had disappeared and the patient had gained 35 pounds. Nervousness was much improved. There was occasional gas, nausea and eructations. One year later, however, the nervousness returned in marked degree and there was troublesome constipation. The patient was not sufficiently careful in diet and habits. She was again put on rigid anticonstipation diet. The foot of the bed was elevated, and exercise and fresh air ordered, with very little improvement. She was then given a course of treatment with autogenous colon bacillus vaccine. At the present time, one year later, reports show the patient to be in good physical and mental condition.

Some cases show a marked predominance of sensory symptoms. These may be classified as paresthesias, hyperesthesias, anesthesias, hyperalgesias, analgesias, myalgia, neuralgia, neuritis, perversions of taste and smell, hyphedonia, and hyperhedonia. In 518 tabulated cases, 421 patients complained of headache, 302 of vertigo, 397 of paresthesias, 387 of myalgia, 379 of "nervousness" and "nervous sensations." We have observed that as a general rule the mental symptoms were more likely to occur in patients who are highly temperamental, and the sensory symptoms in those of a phlegmatic disposition.

The following case history is illustrative of the latter type of individual:

Case 3.—*History.*—Mrs. C. M., aged 50, was of nonenteroptotic type. She had been strong as a child but subject to "bilious attacks." She was naturally a hearty eater, including meats, and always had more or less trouble with her digestion. The trouble began after the birth of her first child, twenty-one years ago. After the second child, two years later, she had a perineorrhaphy, and five years later an appendectomy and ventral fixation was done. Five years ago she had a bad attack of indigestion. A diagnosis of carcinoma of the stomach was made by the attending physician. The patient lost 18 pounds. She complained that her digestion is never right and that she has always much flatulence and sleeps poorly. There was no apparent constipation until two months before examination, when she had a fecal impaction in her right side. She wakes up at 4 a. m. with headache, pain in the back of the head and neck, nausea and marked eructations. She has pain, as she expressed it, "in every nerve of the body from head to foot." The left arm and shoulder are tender and sensitive and the teeth supersensitive. She has numbness in hands and legs. She is very nervous and has had some depression and loss of concentration. She has polyuria, urticaria, and there is an odor to the perspiration. Her chief complaint is pain in the whole body and soreness in the joints of the fingers and toes.

Physical Examination.—This revealed a muddy colored skin, dry brittle nails and hair, coated tongue, tenderness over the whole colon, splashing and crepitation over the cecum. Roentgenography revealed water-trap stomach, residual cecum and residual sigmoid. She had an enormously dilated rectum. There was no gastric retention.

Treatment.—This consisted of diet, autogenous colon bacillus vaccine, hygiene, local treatment of a rectal fissure and hemorrhoids. There were very severe reactions from vaccine, increasing pain and nervousness, lasting from twenty-four to forty-eight hours. Her symptoms, which have been chiefly neuralgic pains, nervousness, insomnia, and irritability, have been markedly relieved by treatment for chronic intestinal toxemia, which included forty doses of the vaccine. The strong reactions following vaccine administration, and the periods of marked improvement thereafter, were very remarkable and seemed to have a strong bearing on the etiology of the symptoms and on the toxemia.

The third class of cases considered, those showing symptoms of the motor system, are fewer in number than the cases with the mental conditions or those with affections of the sensory system, and form a small percentage of the total number of cases. Among these are the so-called cases of epilepsy, supposedly of intestinal origin. We are by no means able to state with certainty that these cases owe their symptomatology to the diseased condition of the intestinal tract and we are not able to cite any patient cured to date, but we do know that treatment of the diseased intestine itself and treatment directed toward the resultant toxemia has cleared up the symptoms directly referable to the intestinal tract and has produced, or been coincident with, a vast improvement in the epileptic seizures. When a relapse in the intestinal symptoms has occurred there has almost invariably been a recurrence of the epileptic seizures. We are of the opinion that a surgical procedure, such as a developmental reconstruction of the colon, in our cases under observation, would correct the intestinal condition and cure the disease. This, however, is to be proved. This class of patients will require a large amount of future study before more definite conclusions can be drawn, but the results obtained in the cases to date are very suggestive of a close relationship between these epilepsies and intestinal toxemia. The case history which follows is interesting in this connection:

Case 4.—*History.*—Miss S. K., aged 38, a milliner, brunette, was first seen five years ago. Her family history was negative for epilepsy or intestinal troubles. She had been constipated all her life, had had "indigestion" for twelve years, and was getting worse. At the age of 14 she began to have attacks of unconsciousness in which she would bite her tongue. She had premonitory aurae at times. These came on usually in the middle of the night and in the early morning hours, leaving her feeling weak and exhausted after waking. Appendectomy was performed one and one-half years ago. The left ovary was removed at the same time for unknown reasons. She always takes cathartics at night. She has frequent spells of nausea, vomiting and malaise, with much pain in the legs, knees and arms at times. A marked symptom in this, as well as in a similar case, has been a feeling of soreness, fulness and heaviness in the cecocolon previous to and during the periods of seizure, with accompanying headache.

Physical Examination.—This revealed a prominent abdomen, dilated stomach and large tender cecum. A blood analysis showed high aminonitrogen, with low uric acid, indicating loss of purin metabolism. Hepatic functional test with phenoltetrachlorphthalein intravenously showed a normal 45 per cent. recovery. The urine showed almost constantly high indican content, but few granular casts. Stool examinations revealed many unchanged muscle fibers and faint blood reaction.

The attacks were getting worse and more frequent; five or six every day. She is confined to bed altogether lately owing to these attacks.

Treatment.—The patient has been under close observation for the last five years. During this time the administration of autogenous colon bacillus vaccine has had a good effect in controlling the seizures, but the patient is still subject to relapses. At the time of these relapses the best results have been obtained by proper care of the intestinal tract and renewed injections of the vaccine. A developmental reconstruction of the colon has been constantly considered and frequently urged, but so far has been unobtainable.

The following case history is one in which marked motor nerve symptoms, resembling closely those of tetanus, was caused by strangulation, gangrene and perforation of the ileum.

Case 5.—*History.*—Mrs. F. DeN., aged 30 years, had three weeks previous to examination an incised wound of the finger, which healed. Two weeks before examination she had an attack of severe vomiting lasting four or five days, with constipation. Two days before coming under observation she developed a stiffening and gradual inability to open the jaws. Her physician thought the condition to be one of tetanus and sent her to the hospital.

Examination.—This revealed a well developed and nourished woman in good mental condition, but the inferior maxilla was firmly fixed to the upper, and there was marked stiffness of the neck muscles. There was a small insignificant healed scar on the finger. There was no distention of the abdomen, and no rigidity or tenderness there. The temperature was normal, the pulse 99. The heart and the lungs were normal. No symptoms occurred until twenty-four hours later, although the jaws did not relax. A convulsion then occurred with opisthotonus, complete muscular rigidity and cyanosis, and the jaws relaxed. She was given camphor and oxygen and the condition passed off in ten minutes. Three hours later she became suddenly completely rigid, cyanotic and died. The temperature had risen to 100.5 and the pulse to 110.

The postmortem examination revealed an omentum all curled up in an effort to wall off an infective process in the pelvis. The peritoneum over the whole intestinal tract showed an intense inflammatory condition. Newly formed adhesions matted together the entire tract. There was in the pelvis a gangrenous loop of ileum about 8 inches in length, which was perforated in several places and covered by omental tissue. No cause for this condition could be found, but the most likely thing seemed to be a preexisting volvulus. The brain and coverings were normal except for a mild edema and congestion. Postmortem cultures, aerobic and anaerobic, from the spinal fluid and blood failed to show the presence of any organism.

The conclusions drawn from this interesting case are that it was a toxemia resulting from the obstruction and gangrene of the intestine, and not a case of tetanus.

In 1908, Draper[1] called attention to a similarity between so-called tetany in human beings and the symptoms of duodenal obstruction in dogs, which is interesting in this connection.

The subject of the involvement of the sympathetic system is of such a broad scope that to go into it with any detail except in certain definite phases is impossible on account of its complexity. We have yet to find a case in which there was not present some involvement of the sympathetic system, but in some cases this is much more pronounced then in others. The symptoms that are most characteristic and directly attributable to irritation of the sympathetic system are: (1) the cardiac symptoms, including tachycardia and palpitation; (2) peripheral vasomotor symptoms, such as diminished blood supply to the skin, dry brittle hair and nails; (3) gastro-intestinal symptoms, including disturbances of taste and smell, appetite, nausea, vomiting, changes in the secretion of the digestive juices, constipation and diarrhea, and (4) disturbances in the endocrine system, with hypothyroidism, hyperthyroidism, alteration in the secretion of the suprarenals and other glands of internal secretion.

Direct connection between intestinal conditions and disturbances in the glands of internal secretion are often highly problematic. Of the symptoms mentioned, we find in the order of their frequency constipation, disturbances in skin nutrition, changes in the secretion of the digestive juices, loss of appetite, ageusia, nausea, changes in the rate and rhythm of the heart, with the subjective symptom described by the patient as "palpitation," and the syndrome of hyperthyroidism. The constipation may be the cause or the result of the toxemia. In the latter case this may be due to the disturbance of the sympathetic system.

It is in the disturbances of the nutrition of the skin that we see the first marked improvement from treatment. A dry dusky skin will often become moist and clear after the intestinal toxemia is controlled.

We have found that in all our cases of intestinal toxemia in which there has been a perverted ductless gland system, only occasional improvement has followed the administration of organotherapeutic prod-

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1. Draper, J. W.: Observations Upon a Form of Death Resulting from Operations on the Duodenum, Surg., Gynec. and Obst., May, 1906.

ucts. On the contrary, the symptoms coming apparently from a perversion of these glands have been improved by the treatment directed toward the intestinal tract and the intestinal toxemia as the primary cause. As one instance of disturbed glandular system may be mentioned a patient apparently suffering from hyperthyroidism, to whom thyroid extract was administered. The result was a very marked hyperthyroidism. Following this some of the common antithyroid measures were adopted without result. Subsequently the patient made a slow but good recovery under treatment for intestinal toxemia. It is a common thing to see an enlarged thyroid with symptoms of hyperthyroidism subside under the treatment for intestinal toxemia.

CONCLUSIONS

The nervous system is almost invariably affected in whole or in part by chronic intestinal toxemia.

The nervous symptoms are often the most prominent in the symptomatology.

A thorough investigation of the gastro-intestinal tract is essential in cases exhibiting a chronic symptomatology of the nervous system provided the usual obvious factors of etiology of disturbances of the nervous system can be excluded.

Disturbances of the gastro-intestinal system are more often the cause of a nervous symptomatology than the result of a diseased nervous system.

In doubtful cases a proper hygiene and therapy of the intestinal tract will often be the deciding factor in differential diagnosis.

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ABSTRACT OF DISCUSSION

Dr. J. Russell Verbrycke, Jr., Washington, D. C.: It seems to me that the nervous system and the gastric system in autointoxication should be considered in the light of a vicious circle. Either system can start the trouble which can then be taken up by the other, and in my experience, considering either system by itself has not resulted in curing the condition. We have to treat the autointoxication by appropriate measures, and with that we have to employ a lot of suggestion to the patients to keep them encouraged. We really know hardly anything of the actual causative factors of intestinal intoxication. We have not been able to separate the individual poisons; we have, however, some idea of the degree of poisoning in the estimation of indican. There is some difference of opinion as to the importance of indican as an index of intestinal intoxication. Recently, I analyzed a series of several hundred cases in which indican was persistently present, and I found on tabulating these cases that 98 per cent. had two or more of the symptoms which we consider to be those of intestinal intoxications or other intoxications. We know several characteristics of the toxins generated in the bowel. We know they are rapid in action and rapid in excretion. A patient may come to us having marked symptoms of dizziness or headache and after one colonic washing the headache and dizziness may disappear; patients often go out of the office relieved. We know, furthermore, that in addition to the rapidity of elimination the patient builds up a resistance to the intoxication, and a patient who at one time shows constant indicanuria, if he has a recurrence, though it is much less in degree than the first attack, feels it a great deal more. The most common symptoms are referable to the nervous system, and I have found that in 67 per cent. of the cases in which there is inability to concentrate, the analysis will show indican. In my experience patients who do not show indican invariably show regurgitation through the ileocecal valve. These have been the most difficult to treat.

Dr. Satterlee mentioned that some of these cases frequently extended over a period of two years. I confess I would be discouraged before the two years were up, but the average case certainly does not take a very long time to improve. Once in a while, however, we do have a very resistant case.

Dr. Fenton B. Turck, New York: Twenty-five years ago when I took up research work on the alimentary tract two explanations were usually given of the causes of intoxication from the gastro-intestinal tract. One was mechanical obstruction of some form or degree, and where no mechanical obstruction could be shown it was concluded that these cases were of nervous origin. The nervous system was held to be the prime factor causing muscular contraction and rhythmic motion of the stomach and intestines. Physiologists later found, after removal of all nerve supply from the muscles, that rhythmic motion continued the same, the nervous system acting as a coordinating mechanism.

My experiments indicated that not only were the muscle cells the prime factors in physiologic function, but atony was closely associated with a bacteriologic problem, the intestinal flora. I found that the muscle cells which were involved undergo a degenerative change with loss of motor power *pari passu* with venous stasis of the splanchnic circulation. Recently (*Bulletin of the Medical and Surgical Faculty of Maryland*, December, 1916, and *Boston Medical and Surgical Journal*, May 10, 1917) I published some interesting experimental and clinical facts showing that the individual muscle cell is the first to be acted on by the factors which produce chronic atony and dilatation.

Fatigue, distention, venous stagnation, toxic absorption and bacterial permeation serve, each in its turn, to exhaust, stretch, stifle, poison and break down the structural units that make up in their sum the muscular wall. Tissues which have shown the atony of dilatation will demonstrate under the microscope the changes undergone by muscle plasma, and, in many cases, will give unmistakable evidence of the special action of vascular or bacterial factors.

The occurrence of colon bacilluria is often presumptive evidence of absorption in spite of the bactericidal function of the submucous tissue.

To sum up: (1) Muscular inefficiency of the gastro-intestinal tract is the basis of the greater part of chronic perversion of digestive function. (2) Experimental atony and dilatation are brought about chiefly through mechanical distention, fatigue and the multiplication of the intestinal flora. (3) Microscopic sections of atonic tissue show the factors of venous stagnation and the permeation of the intestinal wall by bacteria from the lumen; muscle cells of such tissue under the microscope are seen to be in an advanced degree of degeneration. We have here biologic principles to grapple with.

Dr. E. E. Smith, New York: In a paper on the "Etiology of Idiopathic Epilepsy" by Dr. Herter and myself, published in the *New York Medical Journal*, twenty-five years ago, we called attention to intestinal toxemia as a causative factor in epilepsy, reaching the conclusion that seizures were determined in certain cases by the absorption of toxins from the intestinal tract.

The present views in regard to this interesting subject are conveniently expressed by three types which we keep in mind: First, protein sensitization is the condition which first receives our attention with those patients in whom there are skin eruptions; the second type is the arthritic case, and in these cases attention is first directed to localized foci of bacteria; the third class of cases is the type before us today, the nervous cases, in which we direct our attention to toxemia from absorption of chemical substances from the intestines. These are not fixed types, and one condition may often be found with either of the others.

Relative to the intestinal toxemia, we now know of substances formed by putrefactive processes that are entirely capable of giving rise to symptoms in the nervous system, namely, the amins, and particularly the derivatives of ethylamin. There is an exaggeration of the action of particular glands through the formation of certain of these amins, since they are similar in their pharmacologic action to the autocoids of the glandular secretions; and we have, as a result, this perversion of the functions of the nervous system.

If the process in the intestine goes on to a point where there is actual bacterial invasion of the tissues of the intestine, then we have a class of cases in which, in addition to chemical intoxication, we have bacterial infection. These are the cases in which the administration of autogenous vaccines, properly prepared, are giving good results; in other words, in those cases in which we have a mixed condition of chemical poisoning and bacterial infection. Thus, we may have in any of the conditions mixed processes that go on and give rise to and explain various symptoms.

Dr. Nathan Rosewater, Cleveland: It has been said, by Dr. Turck, I believe, that a mechanical cause is not sufficient to explain these cases. In cases of headache due to mechanical causes, particularly from constipation, the relief is almost immediate after taking a cathartic or enema, showing that there was a mechanical cause, not a toxemia. If it were toxic it would take twenty-four hours or more before we could remove enough of the toxic matter absorbed from the bowels into the circulating fluid; so that there is a large class of cases of this purely mechanical type. On the other hand, what is required is a differentiation between the intestinal and nonintestinal toxemias, particularly noting the time of day when the symptoms occur and whether mixed or simple in type.

In cases of simple indican, toxic fatigue occurs at any time of the day, lasts any length of time, but may be complicated. There may, however, be an entirely different type not clearly described heretofore. The patient wakes up in the morning after rest and sleep (fatigue antidotes) with a dry mouth, depressed in spirits, feeling tired and aching all over—muscular rheumatism, so called—and yet as a proof that it is not due to fatigue at all, such a patient, who may be a washerwoman, will, after waking up lame and exhausted, do a hard day's work, and will feel better and be entirely free from trouble in the afternoon and evening. Fatigue would not improve with exercise, nor would neurasthenia. We are dealing here with a type of case which resembles, but is entirely different from, indicanemia or neurasthenia, and which occurs in the early morning and passes off during the day, especially with exercise, massage, etc. There are generally, also, pains in these cases which occur in the early morning, and the pain is so severe at times that it must in some cases be distinguished from appendicitis. If the abdominal muscles are touched in the early morning they are very sensitive, but the oftener you press, the less sensitive they are. Such cases are numerous and are due to purin substances in the foods—purinemia—and not to intestinal toxemia. There is no indican excess in these cases. When the patients are taken off of purin foods they rapidly improve; even though subjected to harder work than ever they do not complain of the old feeling of fatigue, which should be called pseudofatigue.

Dr. G. Reese Satterlee, New York: Our paper was not intended to be a discussion on the etiology or treatment of intestinal toxemia. There was an interesting point, however, brought out by Dr. Verbrycke, who spoke of suggestion or mental therapy in these cases. I will say that it is extremely important. I do not believe that any one could hold a patient for two years unless he used suggestion or mental therapy along with his treatment.

I called attention to the length of time it takes for a patient to get over an intestinal operation. It does take at least one or two years, and if we can cure them in two years without an intestinal operation, we are at least doing as well as the surgeons.

We find indican not at all diagnostic. It might be diagnostic of putrefaction. Dr. Verbrycke spoke about the difficult cases of regurgitation into the ileocecal valve. I think they may be associated with indicanuria. We found that patients in a large percentage of cases of chronic intestinal toxemia have no indicanuria. They may have intestinal putrefaction at one time or another, but a great many of the patients do not have ileocecal regurgitation. Every patient has a rectal injection, so we are sure, as far as the technic can go, that we have no regurgitation. Without indicanuria and without regurgitation the patients are fairly easily taken care of.

Dr. Smith very aptly spoke of two kinds of intestinal conditions: toxemias with putrefactive substances, the amins, in the intestinal contents and those in which the wall of the intestine is involved, in which we are dealing with a bacterial infection. In the latter condition he considered vaccines useful. This is exactly what I have brought out. To sum up, intestinal putrefaction in simple cases may be cleared up by catharsis and starvation, and the other more difficult conditions, in which the wall of the intestine is infected, must be handled by diet, mental suggestion, hygiene and autogenous colon vaccines. In our experience the autogenous colon vaccines are most essential.

A NEW COMPLEMENT FIXATION REACTION AS APPLIED TO LEUKORRHEA

A COMPARATIVE STUDY OF FORTY-SEVEN CASES

LOUIS D. SMITH, B.S., M.D.
AND
F. LEE STONE, M.D.
CHICAGO

The difficulty of making an absolute diagnosis of gonorrhea in woman by a combination of clinical history, signs, symptoms and the usual laboratory methods has led us to undertake a comparative analysis of forty-seven cases of women suffering from leukorrhea, employing the usual methods and the complement fixation test devised by one of us (Smith). It is further desired to submit these records statistically, to form a basis of estimate of the value or accuracy of this reaction.

In entering on these experiments, we were immediately impressed with the insecurity and lack of value of all ordinary methods to serve as a criterion for diagnosis to substantiate our findings. For who, by the methods at our command, can with absolute assurance delegate a woman suffering from leukorrhea to the categorical diagnosis of gonorrhea?

In conducting the special test, it was deemed advisable, in order to eliminate bias, to do so without a knowledge of the nature of the case. Accordingly the specimens were submitted in serial numbers to one of us (Smith), and the other data were kept separately (Stone) until after the report of the test, when all ascertained facts were coordinated. In this manner the special test under trial was performed without any guiding influence, and the other laboratory examinations were made without knowledge of the outcome of this test.

The principle of the test involved is that of the Bordet-Gengou complement fixation reaction. In our test the antibody of the bacteriolytic system is supplied by commercial antigonococcic horse serum, and the antigen is the unknown element. This antigen is embodied in the suspension of the leukorrheal discharge which, although gonococci may be few, nevertheless contains the products of their interaction with the tissue and also their own autolytic products. In other words, the principle of the Wassermann test is reversed, in that in the latter the unknown element is the antibody in the patient's blood, and the known antigen is tissue extract, whereas in our test, the antibody is supplied, and the antigen (identical with the gonococcus or its products) is the unknown factor. Thus employing its principle it is possible to determine at its very inception a gonorrheal infection in male or female, and similarly to determine the time of disappearance of the organism according to experiments we are now conducting.

TECHNIC OF TEST

A specimen of the discharge is collected from the cervix and vagina on a long cotton swab. The swab is immersed in about 2 c.c. of physiologic sodium chlorid solution. The discharge is freed from the swab and ground finely with the sodium chlorid solution in a glass mortar. The suspension thus prepared is permitted to stand over night and then heated at 56 C. (132.8 F.) for half an hour. In appearance a properly prepared suspension exhibits a faint turbidity, to obtain which it may be necessary to add more sodium chlorid solution. Practice will enable one to determine the proper dilution. Floating particles may be removed by a few seconds of centrifuging.

COMPARATIVE ANALYSIS OF FORTY-SEVEN CASES OF LEUKORRHEA *

Case No.	History and Clinical Evidence of Gonococcus Infection	Gram Stained Slides	Smith Test	Blood Examination Wasser-mann	Blood Examination Gonococcus Fixation
1	—	—	—	0	0
2	—	—	—	0	0
3	+	+	+	0	0
4	+	—	+	0	0
5	+	—	+	+	+
6	+	—	—	—	—
7	+	—	+	—	—
8	—	—	—	—	—
9	+	—	—	—	—
10	+	—	+	—	—
11	+	—	+	+	—
12	—	—	—	—	—
13	—	—	—	—	—
14	+	+	+	++++	—
15	+	—	+	—	—
16	+	+	+	—	—
17	—	—	+	0	0
18	+	+	+	—	—
19	+	—	+	—	—
20	+	+	+	—	—
21	+	—	+	0	0
22	?	—	+	—	—
23	+	—	+	+	—
24	+	+	+	0	0
25	—	—	—	—	—
26	+	—	+	—	—
27	—	—	—	—	—
28	—	—	—	—	—
29	+	—	+	—	—
30	+	—	+	—	—
31	+	—	+	0	0
32	?	—	+	0	0
33	?	—	+	—	—
34	+	+	+	+	—
35	—	—	+	—	—
36	—	—	—	0,	0
37	+	—	+	—	—
38	—	—	—	—	—
39	+	—	+	—	—
40	—	—	+	—	—
41	+	+	+	+	—
42	+	—	+	0	0
43	+	—	+	+	+
44	+	—	+	—	+
45	?	—	+	—	—
46	—	—	+	0	0
47	+	+	+	0	0

* In this table, + denotes positive; — negative; ? question; 0 no examination made; 4+ four positive.

In the test a positive and negative control should be used, each specimen requiring ten tubes (as used in the Wassermann test), consisting of a first and second row of four tubes, and single tubes in the third and fourth rows. In all tubes are placed 2 c.c. of physiologic sodium chlorid solution. To the first tubes of the first and second rows is added 1 minim of the suspension, in the second tube 3 minims, in the third 5 minims, in the fourth 7 minims. In the single tube of the third row are placed 7 minims of the suspension. In all the first row tubes and the single tube of the fourth row is now placed 1 minim of the properly standardized antigonococcic serum. In all tubes excepting the single third row tube is now placed guinea-pig serum (complement) as is done in the Wassermann test. The specimens are now incubated in the water bath for one-half hour at 37 C. (98.6 F.), when the antisheep amboceptor and sheep corpuscles are added and reincubated. Readings are then taken. The first row constitutes the test, the degree of inhibition of hemolysis indicating the degree of positiveness, if the corresponding second row, which is the control for the test row, has completely hemolyzed. The third row tube is a control on a possible hemolytic tendency of the specimen to be tested, whereas the fourth row tube is a control on the anticomplementary action of the antigonococcic serum.

The accompanying table indicates our findings. By the caption "history and evidence" is meant a combination of conditions such as known exposure, infection of others, pain and burning on urination, profuse leukorrheal and urethral discharge, etc.

An analysis of the table elicits the facts that in only two instances, Cases 6 and 9, was a negative test obtained when there was evidence of gonorrhea, Case 6 having presented a bartholinian abscess that had been cured. However, in these two instances slide examinations and blood complement fixation tests were negative. In seventeen cases with positive clinical evidence and negative slide examinations, our complement fixation reaction was positive. In four cases without clinical appearance of gonorrhea, the test was positive in two and doubtful in two. Five cases doubtful clinically yielded positive reactions. Three cases with positive clinical evidence and positive Smith test exhibited positive blood complement fixation reactions.

CONCLUSIONS

In view of the fact that we have no real basis for comparison of the test under discussion, time and additional work are necessary to establish its value. It is feasible theoretically because it involves the principle of the Bordet-Gengou complement fixation reaction. In our experience it has been of great value in confirmative diagnosis of gonorrheal infections. It has served, finally, as a guide in determining cures.

25 East Washington Street.

Method to Determine Total Amount of Blood in the Body.—The *Correspondenz-Blatt für Schweizer Aerzte* gives brief summaries of some of the German medical journals, and in a recent issue describes M. de Crinis' method of determining the total amount of blood in the body by refractometry. With a Pulfrich refractometer and Reiss' tables he estimates the proportional albumin content of the blood from a specimen of serum after centrifugation. Then the blood is artificially diluted by injection of 500 c.c. of physiologic saline, and after ten minutes another specimen of serum is centrifuged and the percentage content of albumin determined. To avoid error from loss of fluid by skin and kidneys during the interval, he actually injects 550 c.c. of the saline but computes only for the 500 c.c. The total amount of blood thus determined for healthy persons ranged from 3,300 to 5,600 c.c., equivalent to from 5.98 to 7.5 per cent. of the body weight. His research showed further a fairly constant figure for the total blood amount in individual cases for weeks at a time. The original article is credited to the *Zeitschrift für physiologische Chemie,* 99, 131.

Clinical Notes, Suggestions, and New Instruments

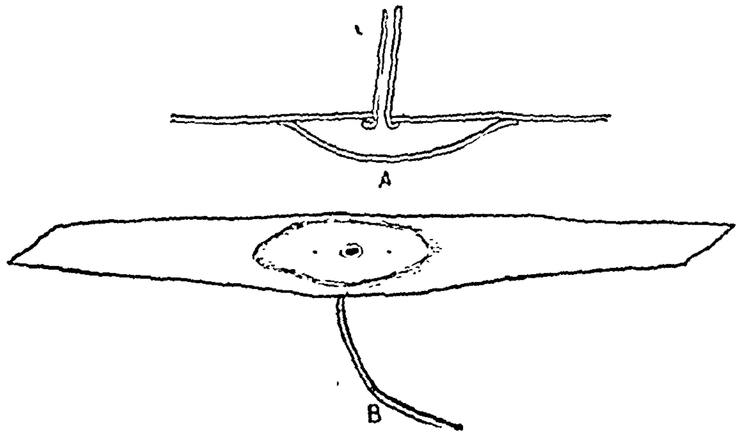
POSTOPERATIVE DRESSING FOR CHOLECYSTOTOMY

Charles H. Breuer, M.D., Lincoln, Neb.

The dressing here described has been adopted in my work in gallbladder cases in which a rubber tube drain is left, for the purpose of eliminating the troublesome and messy pad. These cases, if they drain at all profusely, require changing of the pad from one to three times a day, and usually a large stack of dressings is found saturated with the discharge.

The dressing is made from the rubber umbilical belts made for the umbilical hernia of infants. This belt consists of a band of pure rubber, to extend around the abdomen, with a pneumatic pad in the middle. The pad is inflated by a rubber tube. A section is shown at *A* in the illustration. The rubber pouch which is cemented to the under side of the belt is trimmed away with a pair of scissors, leaving the belt with the tube attached, with the opening on the reverse side of the belt.

After the cholecystotomy case has progressed so far that all drainage can be withdrawn, and only a fistula is left, this belt is sterilized and fastened over the wound, so that the opening into the rubber tube comes just over the fistula. The band is held in place by straps of adhesive plaster. The discharge from the fistula is thus enabled to pass through the rubber tube, into a bottle, just as if the rubber drain were still in place.



Postoperative dressing for cholecystotomy: *A*, diagram of air cushion on umbilical belt; *B*, umbilical belt trimmed for use.

This effects a great saving in time, trouble and dressings, as well as affording the patient a great deal of convenience over the old method.

THE TREATMENT OF URETHRAL CARUNCLES BY FULGURATION

Edgar G. Ballenger, M.D.
Fellow of the American College of Surgeons
and
Omar F. Elder, M.D., Atlanta, Ga.

Not having seen a report of the employment of the high frequency current in the treatment of urethral caruncles, we desire to direct attention to the value of this method of destroying these troublesome growths. Our first experience with fulguration thus used was about two years ago when we fulgurated a large caruncle which had persistently returned over a period of several years after excision once, destruction by the actual cautery three times, and treatment with various cauterizing chemicals. We, as well as the patient, were much discouraged with the results obtained. We explained that fulguration treatment might succeed in preventing a return of this painful vascular tumor, and the patient readily consented to try this method. The surrounding tissue was infiltrated with a 1 per cent. solution of novocain, and the d'Arsonval current was applied until all of the red growth was whitened. Less pain followed the treatment than had followed any of our previous treatments, and at the end of two years there is no return. Slight bleeding occurred at times as the fulgurated mass separated from the surrounding healthy tissues. There has not developed any narrowing of the urethral canal. Two others have been treated in this manner. One required only a single treatment, as the caruncle was small. The other required two fulgurations, as the growth was massive and so surrounded the urethral canal that we were afraid to attempt a total destruction, as we could not determine the limitations of the growth until it was reduced in size.

The patients have all remained well, though sufficient time has not elapsed to permit us to say they are absolutely cured. We can say, however, that they appear normal, one after two years, one after six months and one after two months. The technic of the procedure is much simpler and easier than excision, and the inconvenience to the patient vastly less, as the fulguration may be performed under local anesthesia.

INDIA INK INFILTRATION: A SIMPLE AND EFFECTIVE SUBSTITUTE FOR CORNEAL TATTOOING*

F. H. Verhoeff, M.D., Boston

The method of tattooing corneal scars hitherto employed has consisted in making numerous needle pricks in the scar and then rubbing into them a paste of India ink. It is necessary to repeat this process many times with sufficiently long intervals to allow the inflammatory reactions to subside. This method has given such unsatisfactory results that corneal tattooing is now seldom attempted, either for cosmetic or for optical purposes. Moreover, it is open to the objection that it exposes the eye to serious danger of infection, and when the iris is caught in the scar, even to the danger of sympathetic uveitis.

Several years ago it occurred to me that a simpler, safe and generally more satisfactory method of darkening corneal scars would be to inject the pigment or coloring matter into the tissue by means of a hypodermic syringe. I therefore tried this method, but instead of making use of India ink, I employed a 20 per cent. solution of argyrol in the hope that permanent argyrosis would be produced. The result was most brilliant for about a week, at the end of which time the superficial layers of the scar were cast off, evidently because of necrosis from the toxic action of the argyrol. This made the scar thinner and much less noticeable, but of course was not the desired solution of the problem. It was noteworthy that the argyrol solution remained in the place it was injected and did not diffuse into the surrounding tissue to the slightest extent, thus proving that the penetrating power claimed for argyrol does not really exist.

Recently I have tried the method again in three cases, using India ink instead of argyrol, and the results have been entirely satisfactory. I made use of an ordinary small glass hypodermic syringe and a medium size needle (26 gage). A very small needle might tend to become plugged by the ink particles. The India ink, in stick form, was rubbed up in a small amount of physiologic sodium chlorid solution until a sufficiently black suspension was obtained. The fluid was then drawn up into the syringe through the needle, a piece of cork placed on the end of the needle, and the whole sterilized by boiling. The eye was then cocainized and held firmly by fixation forceps. After the syringe had been cooled and all air carefully forced out of it, the needle was introduced into the scar near the margin and the point pushed just beyond the center. The fluid was then slowly injected until only a narrow rim of the scar remained unblackened. In two of the cases it was necessary to insert the needle in two or three places to obtain this result, owing to the large sizes of the scars. The reason for not forcing the fluid quite to the margins of the scars was to avoid the possibility of its suddenly breaking its way into the normal corneal tissue. The uninjected margins of the scars, however, in none of the cases were sufficiently conspicuous to interfere with the cosmetic results.

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* From the Massachusetts Charitable Eye and Ear Infirmary.

Great care was taken not to force the needle into the anterior chamber.

Following the operation, the eye in each case showed a slight reaction which subsided in about a week. In the course of a few weeks, the blackening became more uniform so that the ultimate results were superior to those immediately obtained. These results were far superior to those of any tattooing operations I have seen, and owing to the large amount of pigment injected and its depth in the tissues, there is every reason to believe that the improvement will be permanent.

DILUTING FLUID FOR COUNTING BLOOD CORPUSCLES

Jacob Diner, M.D., New York

The need of a good diluting fluid for the purpose of counting blood corpuscles has often been impressed on me while working in the laboratory and in hospitals. Those mentioned in textbooks have many drawbacks. Some form a precipitate on standing; others while remaining clear do not permit of the addition of staining solutions so that the white corpuscles may be differentiated from the red corpuscles while making the count; still others destroy the red corpuscles if the diluted blood is permitted to remain in the counting pipet for some hours.

With the object in view of securing a fluid which will do away with the objections mentioned, I have done some work along this line and have obtained what I believe to be an ideal diluting fluid. This fluid permits of the simultaneous counting of white and red corpuscles; it keeps indefinitely without precipitating; it retains the normal shape of the corpuscles, and the diluted blood kept in the diluting pipet for over a week was as perfect as when first drawn. The formula is as follows:

Sodium chlorid	0.85	gm.
Sodium citrate	2.00	gm.
Azure II	0.001	gm.
Formaldehyd solution, U. S. P.	3	drops

Distilled water enough to make 100 c.c.

The sodium salts are dissolved in the water, the formaldehyd solution is added, the azure is added, and it is shaken well. It may be kept in any kind of a bottle.

The technic of using it is the same as with Toison's, Hayem's, or any other fluid. The findings are computed according to the degree of dilution.

FRACTURE OF ISCHIUM

Albert Franklin Tyler, B.Sc., M.D., Omaha

Fracture of the ischium is so rare that the following case is worthy of attention. The history of the accident as given by the patient is interesting.

W. S., a robust man, said that two days previously he had fallen in such a manner that he landed on the buttocks in the sitting position. A half buried brick protruded from the ground so that the force of the fall drove the brick against the right buttock. He tried to rise to his feet, and as he assumed the standing position there was a loud snap and he fell to the ground a second time. Thereafter he was unable to use the leg, and suffered intense pain when any effort was made to do so.

The man lay on the left side with the right leg flexed at the knee. Any attempt to extend the leg produced pain in the right buttock. Pressure over the region of the tuberosity of the ischium elicited severe pain.

Roentgen examination revealed a fracture through both rami of the ischium, the anterior being at about the junction of the ischium and pubic bone, the posterior extending through the acetabulum.

The patient was kept in bed on the left side with the right leg flexed at the knee. Recovery has been slow, but is good as far as function is concerned.

It would seem that when the patient's buttock struck the brick, only a partial fracture occurred, which was completed by the muscle strain incident to rising to the erect position.

Military Medicine and Surgery

PITCHING AND STRIKING THE UNITED STATES ARMY FIELD HOSPITAL

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The ability to pitch or strike its field hospital in a very short time is a necessary accomplishment for every field hospital company. Speed in these two operations will often spell success in the evacuation of the wounded in time of war. As every civilian physician who joins a field hospital company will be confronted with these necessary procedures, their anatomy will be presented in detail. The first essential is to learn how to pitch, strike and fold army tentage.

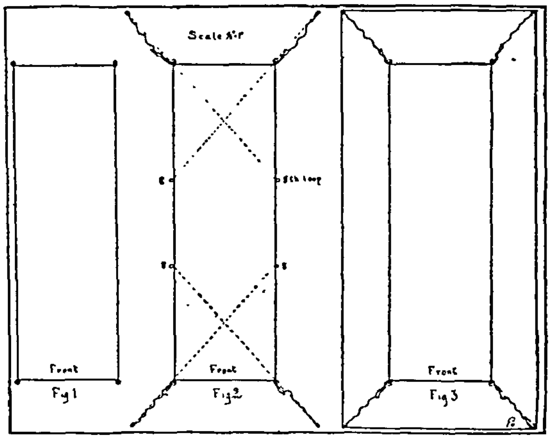

Fig. 1.—Pitching tentage, first step: Tent pinned to the ground by its four corners. Always draw wall taut and then slacken 4 inches before driving the corner pin.

Fig. 2.—Second step: The four corner guy pins added, and ropes placed over them.

Fig. 3.—Third step: Storm guys stretched for alining guy pins.

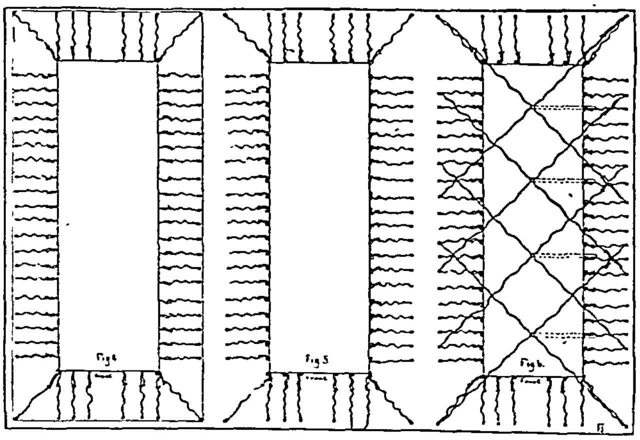

Fig 4.—Pitching tentage, fourth step: Guy pins driven inside of ropes, opposite wall loops, and guy ropes, fully slackened, placed over pins.

Fig. 5.—Fifth step: Wall pins driven through wall loops on Sides 1, 2 and 3, and at (not through) wall loops on Side 4; wall loops removed at LECWP and LRCWP.

Fig. 6.—Sixth step: Uprights placed, hoods and storm guys adjusted; men creep under tent, raise, and then adjust uprights and ropes. Storm guy, a long rope over tent.

PITCHING

The field hospital company is divided into tent pitching squads, each of eight men and an NCO. Each squad is divided into four minor squads of two men each, numbered Minor Squad 1, Minor Squad 2, Minor Squad 3 and Minor Squad 4. The four sides of a tent are numbered 1, 2, 3 and 4, Side 1 being the front side, and the others, 2, 3 and 4, numbered as the hands of a clock travel, that is, No. 2 to the right, No. 3 to the rear and No. 4 to the left. Each minor squad pitches and strikes on the side of its number, as Minor Squad 1 on Side 1, etc.

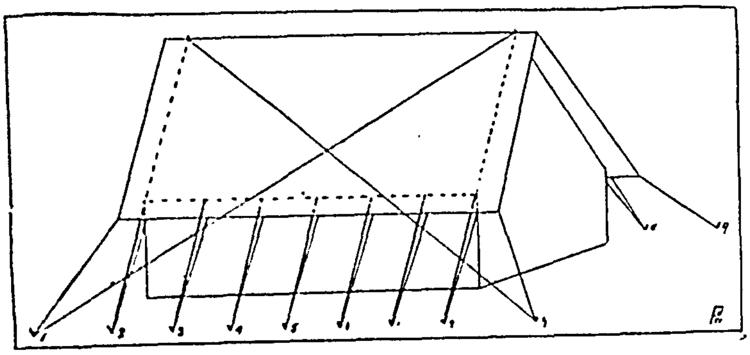

Fig. 7.—View of hospital tent and fly: Ropes go to pins as indicated; 1 and 9 are 8 feet from the corner wall pin; 2 and 8 are 2 feet from 1 and 9; corner guys of tent are on 2 and 8.

ABBREVIATIONS

RFCWP, right front corner wall pin
LFCWP, left front corner wall pin
RRCWP, right rear corner wall pin
LRCWP, left rear corner wall pin
NCO, noncommissioned officer

(*a*) The tents are unrolled. Squad 1 drives RFCWP, places RFCW loop over RFCWP, and ties the front door with a wall pin through the proper wall loop. (The proper wall loop is found as follows: For hospital and wall tents the two wall loops at the ends of the sod-cloth (the canvas apron below the walls) are used, one being slipped through the other and a wall pin being thrust through the free one. For ward

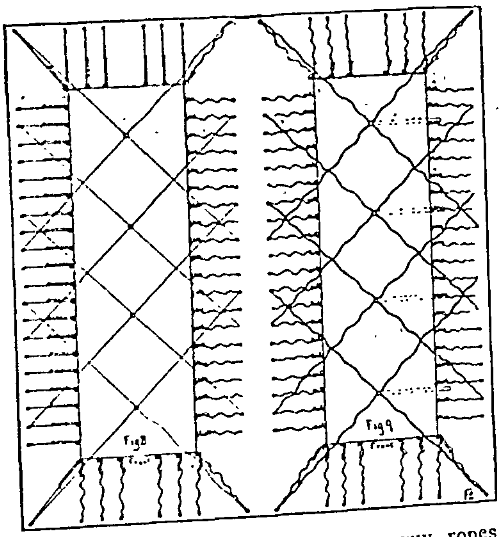

Fig. 8.—Striking Tentage, first step: Loosen guy ropes on Sides 1 and 4. (Do not remove from pins. Loosen on Side 4 only if no guy ropes on Side 1.) Also remove wall loops on Side 4, including corners.

Fig. 9.—Second step: At command "down," men carry bases of uprights through Side 4, then remove all pins except R and LRCWP for pyramidal tents or RF and RRCWP for all other tents.

and pyramidal tents, the wall loop at the end of the sod-cloth is slipped through the loop where a rope is tied to the end of the door, and the wall pin is thrust through the wall loop. The rear door, if there is one, is tied in the same manner.) At once Squad 4 places LFCW loop over LFCWP, and drives the pin after the other tents. Squad 2 places the NCO a RRCW loop over RRCWP, and drives the pin. Squad 3 places LRCW loop over LRCWP, and drives the pin. The tent is now pinned to the ground by its four corners (Fig. 1).

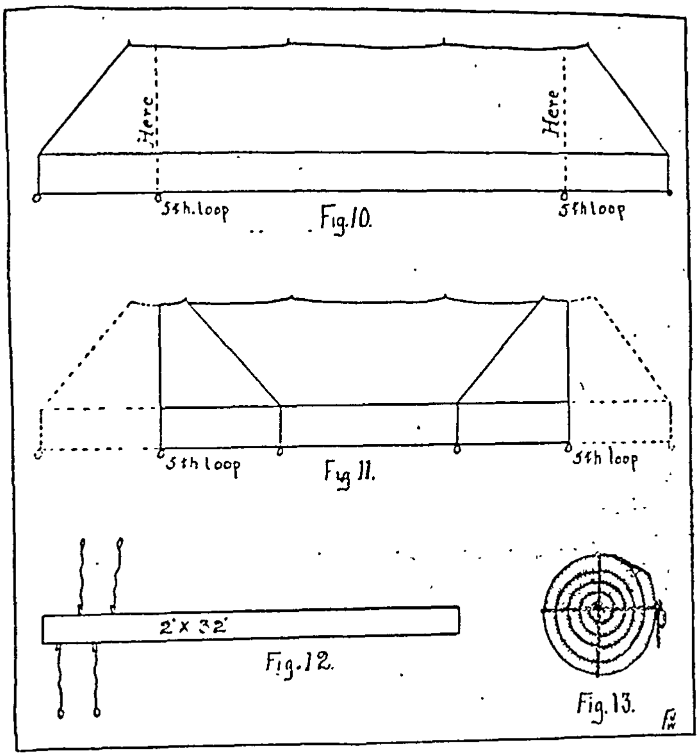

Fig. 10.—Folding, first step: Draw tent away from tent site until taut on two corner pins. Fold ends to lines marked "here."

Fig. 11.—Second step: Place all guy ropes and hoods on tent near apex. Fold from apex in 2 feet folds until in a long, slender rectangle about 2 by 30 feet.

Fig. 12.—Third step: Roll tightly from one end and tie at other with four guy ropes around circumference.

Fig. 13.—Fourth step: Tie this drum shaped package in a manta, if there is one.

(*b*) Each squad now drives its corner guy, using a guy pin, which is exactly 2 feet long, as a measuring stick. The guy pin is driven, for square or approximately square tents, in a line diagonal with the opposite corner. For the ward tent, which is a long tent,

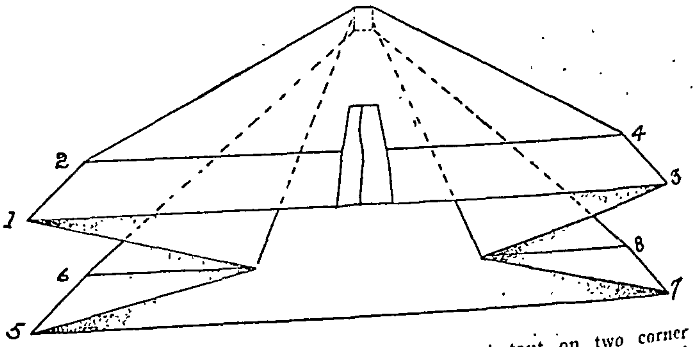

Fig. 14.—Folding pyramidal tent: Draw tent taut on two corner wall pins. Carry 1-2 over to 7-8. Return and cover 5-6, smoothing out folds. Now carry 3-4 to 5-6, return and cover 7-8, smoothing door and any folds. This makes the tent bellows-shaped. All this time the metal square at the apex is held taut and perpendicular on the ground. Now place hood in apex square and fold from top to bottom in apex-square-width folds. Then fold from each end and tie with two interior guys, fully slackened.

the diagonal crosses the tent at the eighth wall pin on the opposite side instead of at the corner (Fig. 2). The distance of the corner guy pin from the corner wall pin is as follows: 6 feet for the small wall tent and the small pyramidal tent; 7 feet for the pyramidal tent; 8 feet for the wall and the hospital tents, and 11 feet for the ward tent.

(*c*) Four wall pins and four guy pins are now in the ground for each tent. At once storm guy ropes (braces) or hood guy ropes are stretched between the corner guy pins on every side where guy pins are to be inserted (Fig. 3). These mark the line for the guy pin sites. Just inside this rope a guy pin is driven to match every wall loop seen on the tent. All guy ropes, fully slackened, are placed over these pins in proper order (Fig. 4). Now, for the pyramidal tents, all wall pins are driven through the wall loops, the bottom tent wall edge being first made perfectly straight. For all other tents on Side 4, wall pins are driven at wall loop site instead of through it, so that uprights can be inserted from Side 4. Also wall loops are removed from LFCWP and LRCWP for the same reason (Fig. 5).

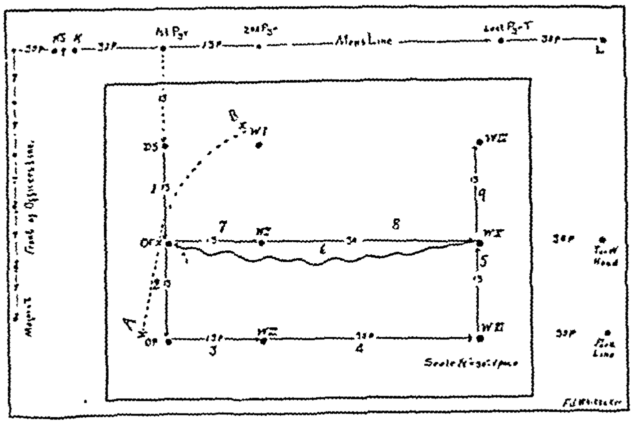

Fig. 15.—Laying out the hospital site: As soon as the officer has traveled over the route 1, 2, 3, 4, 5, 6, 7, 8, 9, the king pin sites for the hospital are located; the numbers 7, 13 and 30 refer to the number of paces; *x*, *x*, *x*, on the line *A-B*, the positions taken by the orderly; the dots, right front corner wall pins.

(*d*) Now the upright or uprights, and the ridge, hood and storm guys, if there are any, are inserted (Fig. 6). (The upright for pyramidal tents is inserted from the front door; uprights for all other rectangular tents from Side 4.) For all tents the front upright, hood, apex ring or square is numbered 1; the second, 2; the next 3, and the rear one 4, if there are so many.

(*e*) *Raising the Tent.*—For pyramidal tents: Each No. 1 of the four minor squads goes to his corner guy, and all No. 2's enter the tent and at command "Raise" by the NCO, raise the tripod and the wooden upright. The NCO at the door alines the upright. He directs the proper No. 1 to tighten. When he says "All tighten," all 1's and 2's tighten all guys and hood ropes on their respective sides. For hospital or wall tents: Minor squads 1 and 2 go to the front upright, and No. 1 of Minor Squad 1 places the apex of the upright on his right knee and adjusts the necessary parts. Minor Squads 3 and 4 do the same at the rear upright, No. 1 of Squad 3 assuming a left knee position. At the command "Raise" by the NCO, the tent is raised by the eight men. (Bases of uprights must always remain on the ground in the raising.) The same procedure is followed with the ward tent, except that Minor Squad 1 and No. 1 of Squad 2 raise Upright 1, No. 2 of Minor Squad 2 raises Upright 2, No. 2 of Minor Squad 3 raises Upright 3, and Minor Squad 4 and No. 1 of Minor Squad 3 raise Upright 4.

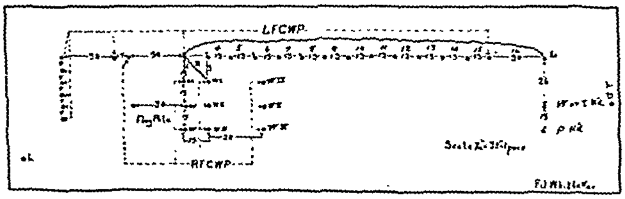

Fig. 16.—As soon as the officer has paced and meandered over the route 1, 2, 3, 4, 5, 6, 7, 8, 9, 10, 11, 12, 13, 14, 15, 16, markers for officers', men's and kitchen tentage are in the ground. The numbers 7, 13 and 30 refer to the number of paces between pins; *RFCWP*, right front corner wall pin; *LFCWP*, left front corner wall pin; *O*, right or left front corner wall pin as shown above; *A*, men's and patients' latrines; *B*, wagon or truck park; *C*, picket line.

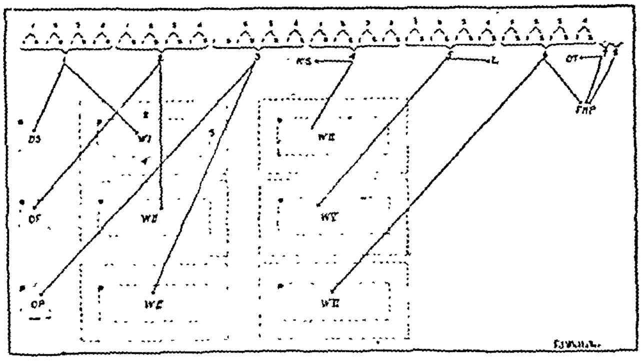

Fig. 17.—With an animal-drawn field hospital, the men form in line in the company street before pitching the field hospital.

(*f*) As soon as the tent is raised, the uprights are alined, all guys and other ropes are tightened, and all axes, extra pins and débris placed at the right front corner of the six ward tents (inside the ropes, axes chopped into ground in line, pins and débris in orderly piles). Figure 7 shows the method of placing tent, fly and storm guy ropes for the hospital tent.

STRIKING

Only four men strike a tent, as each squad usually strikes two tents. Minor Squads 1 and 2 strike their tent nearest the front of the hospital; Minor Squads 3 and 4 the tent toward the rear. First step: The guy

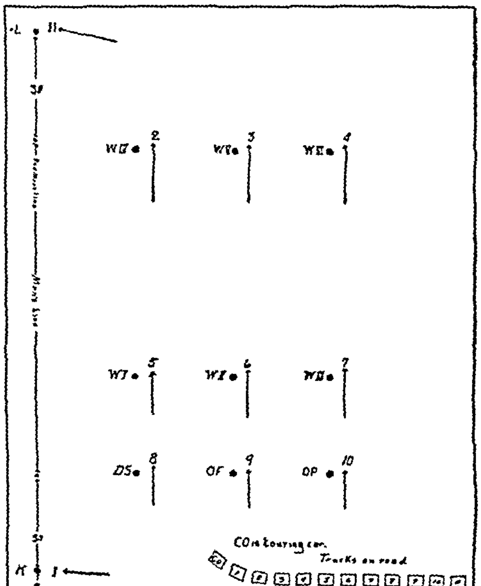

Fig. 18.—Route and stopping point of trucks: Each truck stops at the point on the hospital site where its number is placed. When unloaded, it goes at once to its proper place in the truck park, 7 feet apart. At truck park all drivers "eyes right" on office and Wards 2 and 5 markers for alinement.

ropes only on Sides 1 and 4 are loosened. (They are not taken off of the guy pins.) All wall loops are removed from the wall pins on Side 4 only (Fig. 8). Second step: The men go at once to the uprights (if there are two uprights, two men per upright; if four, one man per upright, in order of squad number from front to rear) and at the command "Down" by the man at the front upright, the bases of all uprights are removed through Side 4 (for pyramidal tents, through the front door; also wall loops on Side 4 need not be removed; Fig. 9).

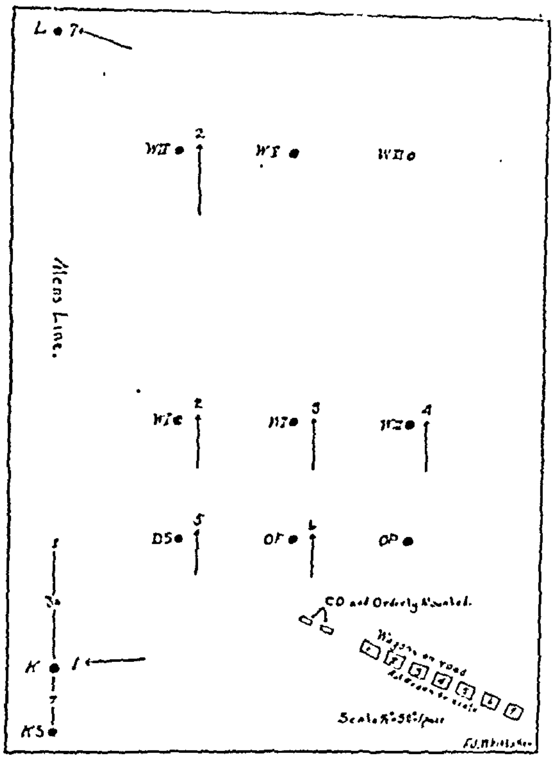

Fig. 19.—Route and stopping point of wagons: Each wagon stops at the point on the hospital site where its number is placed. When unloaded it goes at once to its proper place in the wagon park, 7 feet apart. At wagon park all drivers "eyes right" on office, and Wards 2 and 5 markers for alinement.

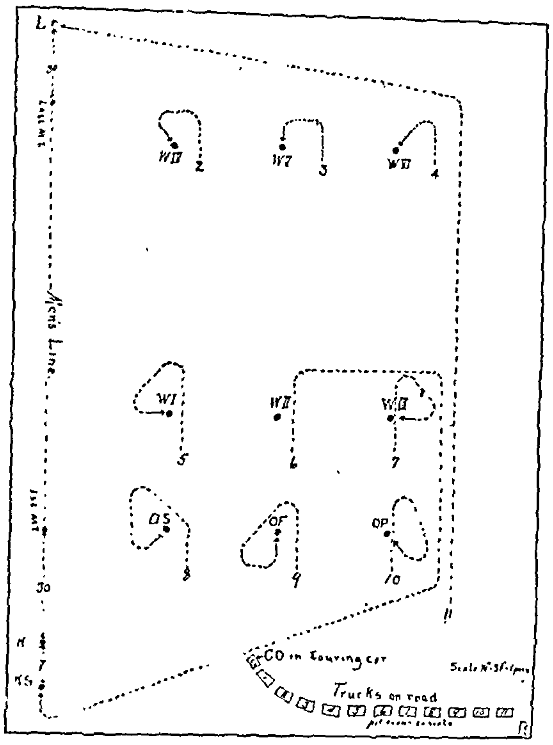

Fig. 20.—Pitching and striking at night. The commanding officer and orderly drive ahead of the column and place lighted lanterns at the marker site. Each truck stops at a lighted lantern as indicated in Figure 18. When unloaded it wheels and points headlights in direction of arrow. This gives a well illuminated field for pitching. These positions are assumed in striking also.

If the hospital is animal drawn the lanterns are placed as indicated, but the wagons stop as shown in Figure 19. The additional lanterns belonging to the field hospital are now lighted and placed wherever needed.

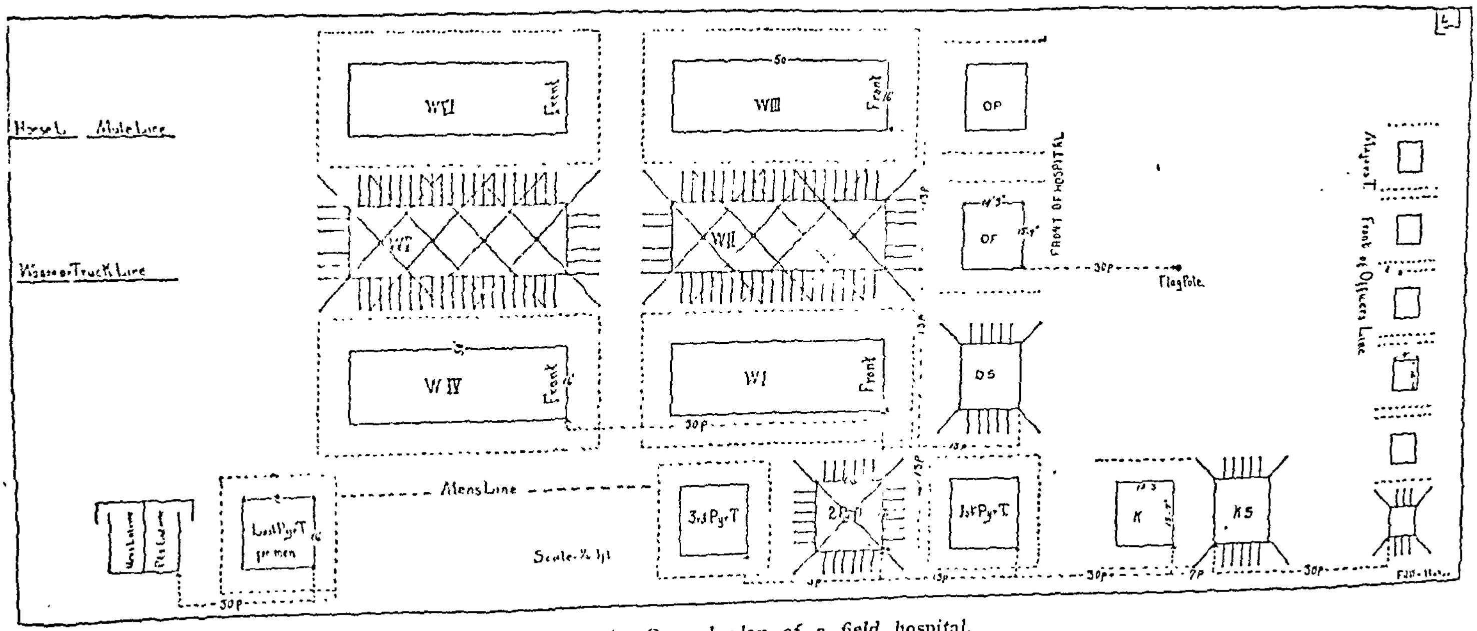

Fig. 21.—Ground plan of a field hospital.

FOLDING

All pins except RFCWP and RRCWP for all tents except pyramidal are removed. For pyramidal tents, all are removed except RRCWP and LRCWP. The tent is pulled away from its site until taut on the two pins left in the ground. Pyramidal tents are folded bellows-shaped (Fig. 14), and are folded from the apex the width of the metal square until all folded. Then they are folded from each end and tied with two center guy ropes, fully slackened. Hospital or wall tents are folded in end triangles until the tent is rectangular. They are folded from the apex in 2 foot folds until entirely folded. They are folded from each end and tied with two center guys, fully slackened. (If a fly is present, it is folded and the tent placed on it before final folding and tying. This ties both into one package.) With ward tents, the front of the tent, one panel beyond the first apex ring, is folded to the fifth loop (Fig. 10). The same is done at the rear (Fig. 11). Now eight storm guys and four hoods are added. Now from apex it is folded in 2 foot folds until entirely folded (Fig. 12). Rolling is begun at one end, and four guy ropes are left out, fully slackened, two on each side, at the other end for tying. This gives a drum-shape package easily handled, with only the wall outside (Fig. 13). Now it is tied in a cover or manta, if there is one.

LAYING OUT THE HOSPITAL

As soon as the officer has traveled over the route 1, 2, 3, 4, 5, 6, 7, 8, 9 (Fig. 15), the sites for the store tent, office, operating tent and six ward tents are located. If pyramidal tents for the men are to be pitched, sites are marked as in Figure 16. If shelter tents, when he is ready to leave Ward 4 marker, the officer continues outward for 13 paces and places a marker to orient the rear end of the men's line. This marker is in line with Wards 4, 5 and 6 markers. He then goes to the stores marker, moves outward for 13 paces, and places a marker in line with stores, office and OP tent markers to mark the head of the men's line. At this marker he right angles to the left for 30 paces and places a marker for RFCWP of the kitchen. This marker is in line with the front and the rear men's markers. At 7 paces farther in the same line, he places a marker for the LFCWP of the kitchen store tent. He then continues in the same line for 30 paces, and places a marker for the LFCWP of the junior officer's tent. He right angles to the left, goes 7 paces, and places a marker for the LFCWP of the next officer's tent, 7 paces more for the LFCWP of the next officer's tent, and so on until a marker for the major's tent is placed.

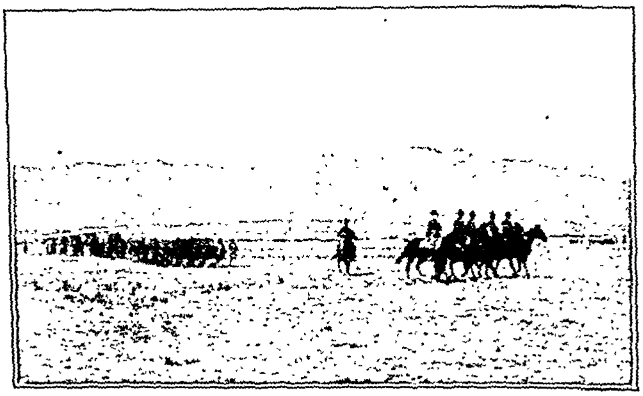
Fig. 22.—An animal-drawn field hospital on the march.

Route of Orderly (*A-B*, Fig. 15).—The orderly starts at OP tent by assisting the officer in turning a right angle and waving him into position at Ward 3. He then goes to a point in front of the office marker and alines the officer for Ward 2 marker. He then goes to a point near the site for Ward 1 marker and places a marker in the ground alined on Wards 2 and 3. The officer at Ward 4 also alines the orderly's marker on Ward 4 and stores, which locates the site of Ward 1 marker.

Waving into Position.—The waver extends both arms sideward, looking at the "marker or pin setter." "M or PS" moves the marker or the pin to the right or to the left as the right or the left arm of the waver moves up and down. Both arms of the waver quickly lowered means "position is correct."

Provisional Pin.—When the officer first reaches Ward 5 he places a marker slanting directly backward as a "sighting" or provisional marker. Its distance from Ward 6 marker is correct, but its distance from Ward 2 marker is uncertain. The orderly at the office waves the officer into position at Ward 2 by sighting on a slanting marker, and the officer "ties in" this marker (places it in proper position perfectly upright) after pacing "8" (distance between Ward 2 and 5 markers) in the route of the officer.

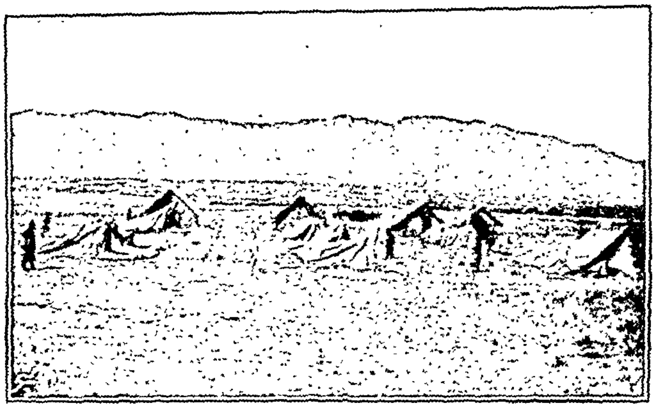
Fig. 23.—Raising the hospital tentage.

TO FORM COMPANY ON LINE FOR PITCHING HOSPITAL

The company approaches in column of fours at double time with the leading element facing directly down CF line. The commands "On right into line," and "March" are given as the first set of fours reaches the head of the men's line, and "Company, Halt" as soon as on CF line; "Front," as soon as the company is in proper line 13 paces from hospital site; next, "Count Twos"; then "Count MS by fours" (this means count minor squads 1, 2, 3, 4; 1, 2, 3, 4; 1, 2, 3, 4, and so on, each No. 2 counting). Then the command "Count TP Squads." (Each No. 2 of each fourth minor squad counts numerically as 1, 2, 3, 4, 5, 6, etc.). As soon as this count is completed, the men rush to the wagons, unload and pitch the hospital. For the *motorized field hospital*, proper squads are already on trucks at the proper tent pitching sites. As soon as they have unloaded the trucks they rush to the men's line, unsling packs, return to tent sites, and begin pitching.

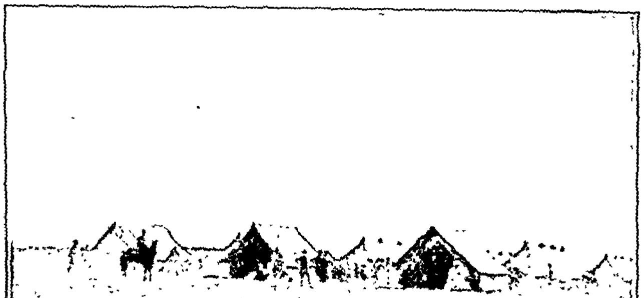
Fig. 24.—The hospital complete, ready to accommodate 216 bed patients.

ABBREVIATIONS

MS, minor squad
CF, company front
TPS, tent pitching squad
L, latrine
DS, dispensary and stores tent
OF, office tent
OP, operating tent
FHP, field hospital property
MS by fours, minor squads by fours
TP Squads, tent pitching squads

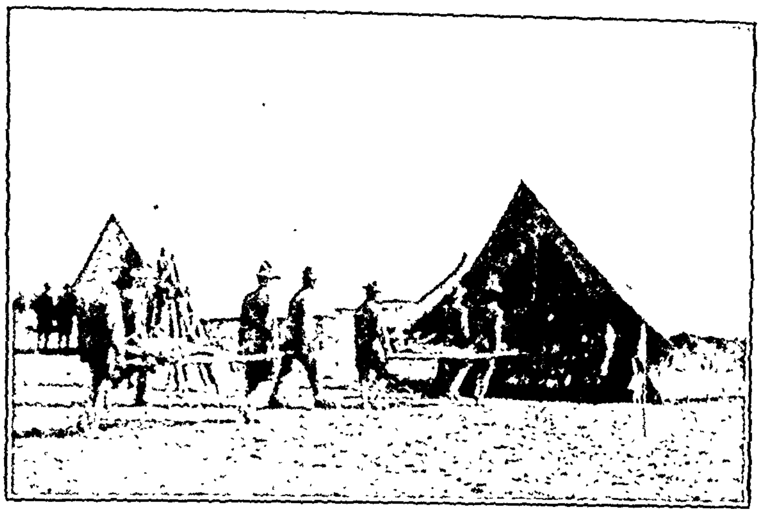

Fig. 25.—Admitting patients to the hospital.

Two cooks and two kitchen police riding on Truck 1 pitch the kitchen fly.

ROUTINE

When an order to pitch hospital is received, an officer with an orderly seeks a suitable site and lays out the hospital as in Figure 15. If this order occurs at night, the procedure is outlined in Figure 20. Later the officers' line is added as in Figure 16. When trucks or wagons arrive, they go to sites as shown in Figures 18 or 19. Tentage is pitched as in the large ground plan.

ABBREVIATIONS

K, kitchen
KS, kitchen stores
OT, officers' tentage
W, ward
OF, office tent
OP, operating tent
FHP, field hospital property
SQ, squad
KP, kitchen police
DS, dispensary and store tent
L, latrine tentage
HT, hospital tent

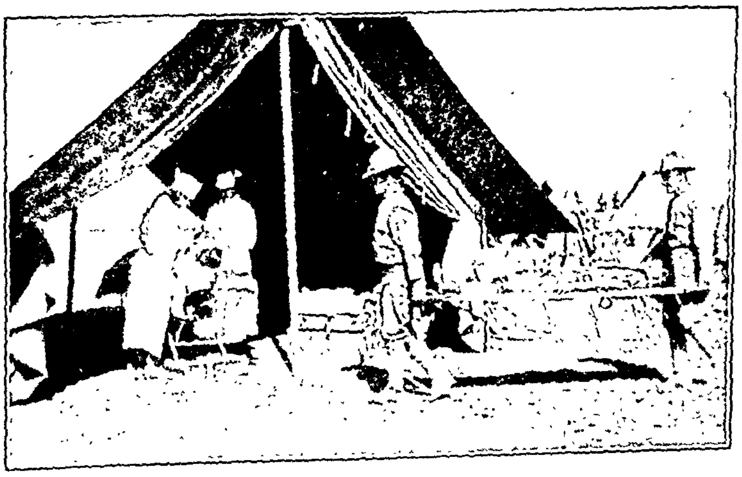

Fig. 26.—A view of the operating tent.

LOADS OF TRUCKS

Truck 1 carries K. fly; KS; OT; KS tent; cooks and KP.
Truck 2 carries W 4 complete; FHP; Sq. 4.
Truck 3 carries W 5 complete; FHP; Sq. 5.
Truck 4 carries W 6 complete; FHP; Sq. 6.
Truck 5 carries W 1 complete; DS; FHP; Sq. 1.
Truck 6 carries W 2 complete; OF; FHP; Sq. 2.
Truck 7 carries W 3 complete; OP; FHP; Sq. 3.
Truck 8 carries Disp. equip.; FHP; Sq. 7.
Truck 9 carries Office equip.; FHP; Sq. 8.
Truck 10 carries Oper. tent equip.; FHP; any extra men.
Truck 11 carries FHP; L; gas; oil; water; any extra men.

LOADS OF WAGONS

Wagon 1 carries same as Truck 1. (Codks and KP ride wherever convenient.)
Wagon 2 carries 6 Ward tents (no poles or pins).
Wagon 3 carries 3 HT—all poles, pins, axes.
Wagon 4 carries Bedding.
Wagon 5 carries Bedding, Disp. Office and other FHP.
Wagon 6 carries OP equip. and FHP.
Wagon 7 carries L and forage.

SQUAD DUTY

Each squad always unloads, pitches, strikes and loads tentage and equipment as follows:

Sq. 1 = DS and W 1
Sq. 2 = OF and W 2
Sq. 3 = OP and W 3
Sq. 4 = KS and W 4
Sq. 5 = L and W 5
Sq. 6 = W 6 and places FHP
Sq. 7 = Places FHP and pitches OT
Sq. 8 = Places FHP

Cooks and KP pitch the kitchen fly, put up a stove, dig a garbage pit, and prepare a meal.

All police the camp site before leaving. The hospital should be laid out before the arrival of trucks or wagons in order to avoid delay.

PITCHING AND STRIKING A FIELD HOSPITAL

Time begins when wagons or trucks are 50 feet from the hospital site (the ground plan is given in Figure 21). If the equipment is animal drawn, the men double time to the men's line, remove packs, rush to the proper wagons (Fig. 17), unload, and pitch tents as indicated under "routine." If the equipment is motorized, when the trucks stop at the tent sites the men jump off, unload the trucks, rush to the men's line, remove equipment, rush back to the tentage sites, and pitch the proper tents. Time ends when every detail previously announced by the commanding officer is completed. (At first drills, only tent pitching is done. Later, latrine, wagon or truck park, kitchen, equiping one ward, office, operating tent, picket line, if there is one, are added. Finally, the hospital complete in every detail is required.)

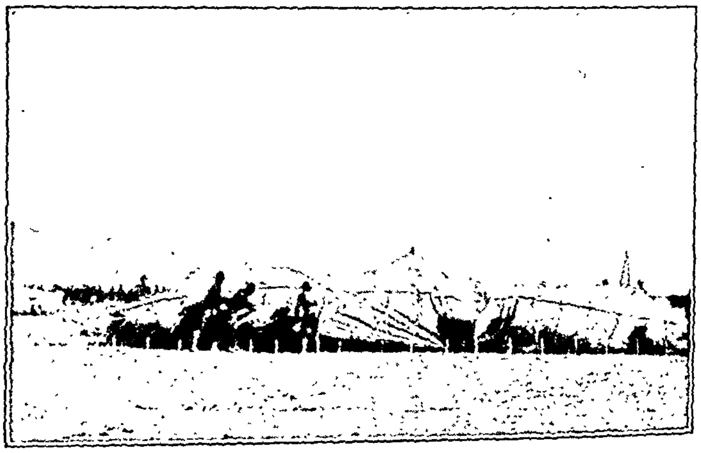

Fig. 27.—Striking the huge ward tent; each field hospital has six of these.

Striking.—Men form in line in the company street. The whistle blows. Time begins. The men rush to work. Time ends when the equipment is properly loaded, and men and vehicles are 50 feet beyond the hospital site. (The site, of course, is to be policed perfectly.)

FOR SPEED IN PITCHING AND STRIKING HOSPITAL

All details should be so arranged that *no commands* are needed at the hospital site. With a well trained company *no voices* are heard during pitching or striking. If time is taken, a whistle blast starts and ends each operation.

Although it has taken many words and illustrations to present the details of pitching and striking a field hospital, a trained field hospital company has pitched its field hospital, ready for work, in less than fifteen minutes. Also it has struck the hospital and been en route to some other field of endeavor in six minutes.

MEDICOMILITARY CONSIDERATIONS OF THE MODERN MILITARY BULLET

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The modern military bullet is small of caliber, of comparatively light weight and is propelled at very high velocity by dense smokeless powder. It is sharp pointed and is cylindro-ogival in shape. The bullet consists, in most cases, of a central core of lead with an extremely hard jacket of nickel composition. The French bullet, however, is of solid copper.

From the short, heavy, large-calibered bullet of lead, propelled at low velocity by black powder, the military bullet has changed, through many gradations, to a long, light-weight, small-calibered jacketed bullet, propelled at very high velocity, with flat trajectory, by smokeless powder and with a striking force of tremendous energy.

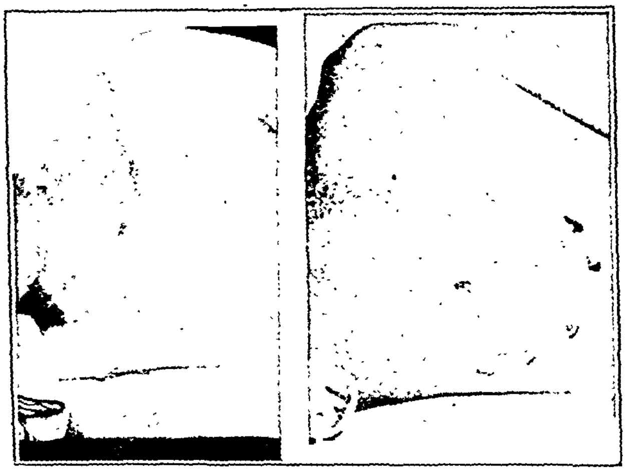

Fig. 1.—Simple perforation with minimum tissue injury. Result of a sniper's bullet at long range.

It was originally believed that a bullet of this type, if it did not strike a vital part, would cause a simple perforating wound which would heal quickly and cleanly. Practical experience has shown that the modern military bullet commonly causes wounds of an extensive and mutilating character, especially at moderate ranges and on striking bone. This destructive action is popularly known as the "explosive effect," and indeed a penetrating bullet in the act of leaving the body may literally tear away the flesh or leave a mushroom-like mass of tissue at its point of exit.

As an instrument of death and as a means of producing wounds of a severe and disabling character, the modern bullet is very effective. It is at long ranges that the simple perforating effect is most often noted.

The German S bullet (*Spitzgeschoss*) weighs 154 grains and is propelled by approximately 50 grains of dense smokeless powder. The jacket is of ferronickel. The lead core is not completely covered by the jacket but is exposed at the base of the bullet. The English bullet is similar in construction, with a jacket of cupronickel and an aluminum cone or so-called "jockey" at the point of the lead core. It is longer and heavier than the S bullet and weighs 174 grains. The French bullet is of solid copper, and is longer and heavier than either the German or the English bullet, its weight being 197 grains. The 1906 United States government model Springfield cartridge has a bullet weighing 150 grains, with a lead core and a jacket of cupronickel.

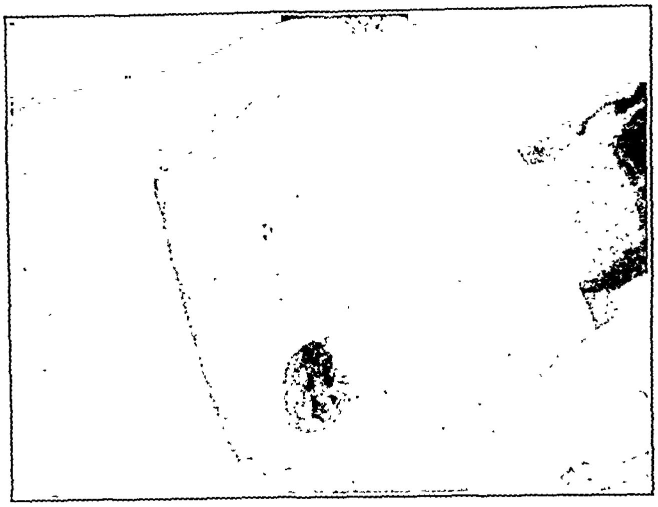

Fig. 2.—Explosive wound of exit in muscles of the back, produced by a bullet at range of less than 500 yards.

The German cartridge is the most powerful in use among the belligerents at the present time. The bullet leaves the muzzle of the rifle with a velocity of 2,915 feet per second and has at the muzzle a striking energy of 3,018 foot-pounds, or two and one-half times that of the old 45-70 U. S. Springfield cartridge used in late Civil War days. The 1906 Springfield cartridge most nearly approaches this tremendous force, having an initial velocity of 2,700 foot-seconds and a muzzle energy of 2,445 foot-pounds. The velocity, and consequently the striking power of these high power bullets, rapidly falls after traversing the first few hundred yards, so that at 500 yards the velocity of the German bullet is 1,714 foot-seconds and its striking energy but 1,001 foot-pounds, only one third of its muzzle energy, while the Springfield bullet is traveling at the rate of 1,668 foot-seconds and has only 932 foot-pounds energy. At 1,000 yards the velocity and energy of each is 1,068, 382 and 1,047, 370, respectively.

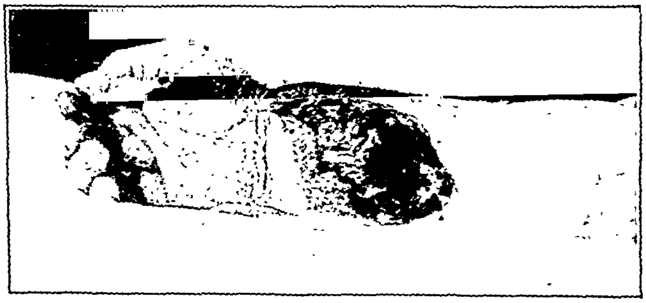

Fig. 3.—Extensive tissue destruction produced by a high energy, penetrating bullet striking the ulna and causing comminution. Range less than 500 yards. A roentgenogram of this wound is shown in Figure 4.

The velocity and striking force of these two bullets decreases much more rapidly, relatively, than is the case with the French and English bullets, which have a lower initial velocity but higher sectional density and weight. Thus the English and French bullets, especially the French, are much more effective at extreme ranges, for, while they do not start with as much energy, their greater mass assists in its retention. It is obvious, however, that all of these bullets are at the height of their energy and destructiveness before the first 500 yards are passed in their flight.

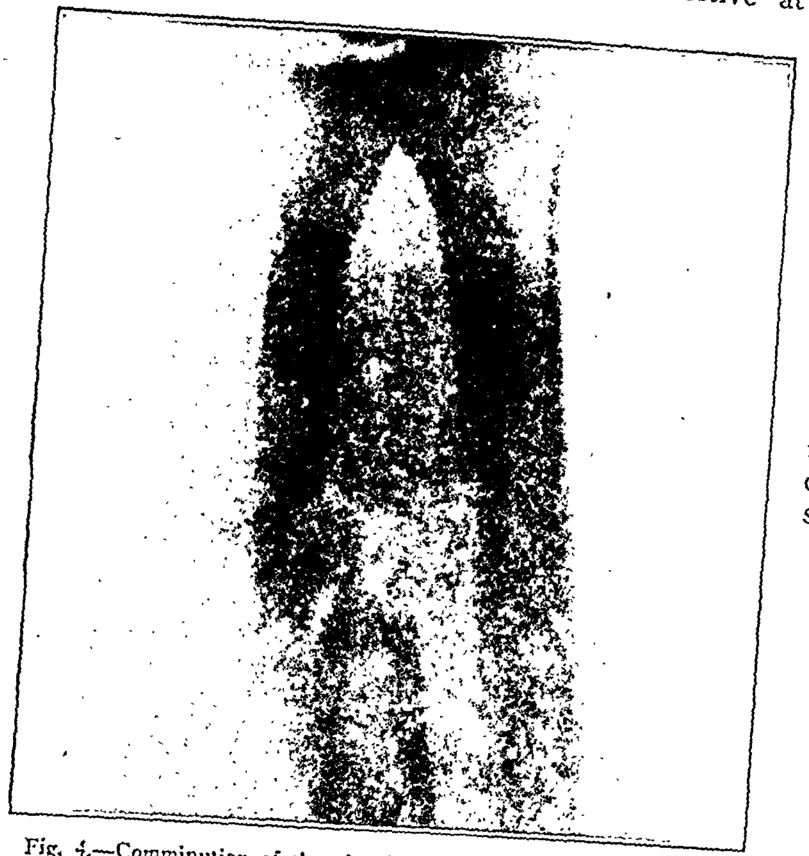
Fig. 4.—Comminution of the ulna in the wound shown in Figure 3.

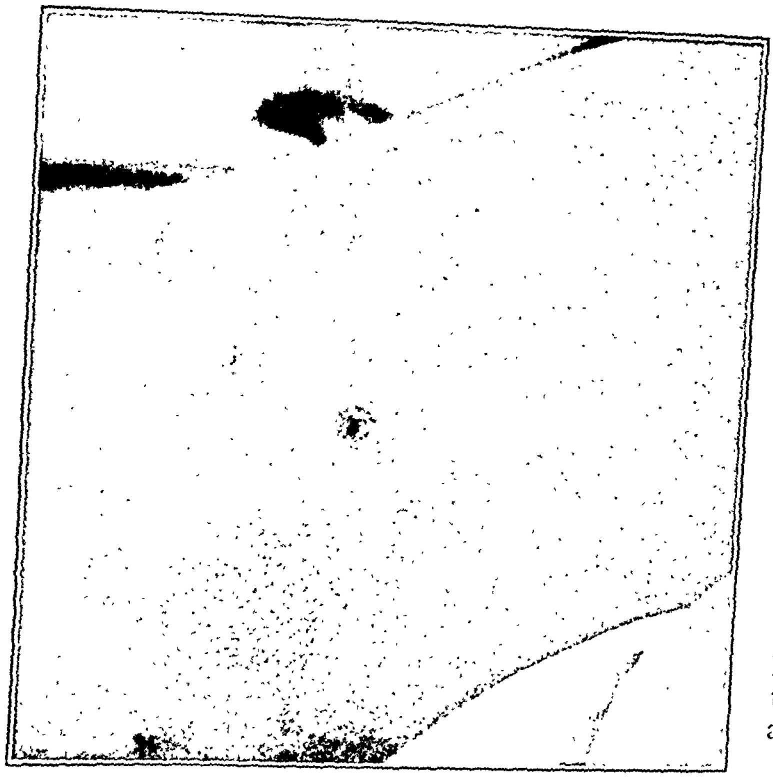
Fig. 5.—Simple wound of entrance made by a bullet that lodged in the thigh. Range over 500 yards.

The construction of the German bullet, and others of like type, renders it liable to fragmentation on striking hard objects. This fragmentation is of varied form. The jacket is generally stripped off in one piece and curled, although it may be broken into several pieces. The lead core may remain in one battered lump, may be divided into a few large pieces, or may be shattered into fine pellets, or even into a dustlike condition. The stripped jacket may be left behind in the tissues by a perforating bullet. The solid French bullet, while it may be deformed by striking a hard object, rarely if ever undergoes fragmentation. "Explosive bullets," as these are sometimes called, have, in many instances, had their velocity checked and their course altered by striking an intervening object. They ricochet, and the fragmentation begun by the first impact is completed by striking the body. They do not commonly produce the severe laceration of a penetrating, intact bullet at the height of its energy.

A jacketed bullet may, in traversing a barrel heated by repeated firing and aided by the friction of the particular bullet, become heated to the extent that the lead core assumes a semisolid state. Such a bullet when it strikes, flattens out like a well-rotted apple, and the lead is distributed in the tissues in a finely powdered form. A bullet of this nature would have little penetration and its destructiveness would be thereby limited.

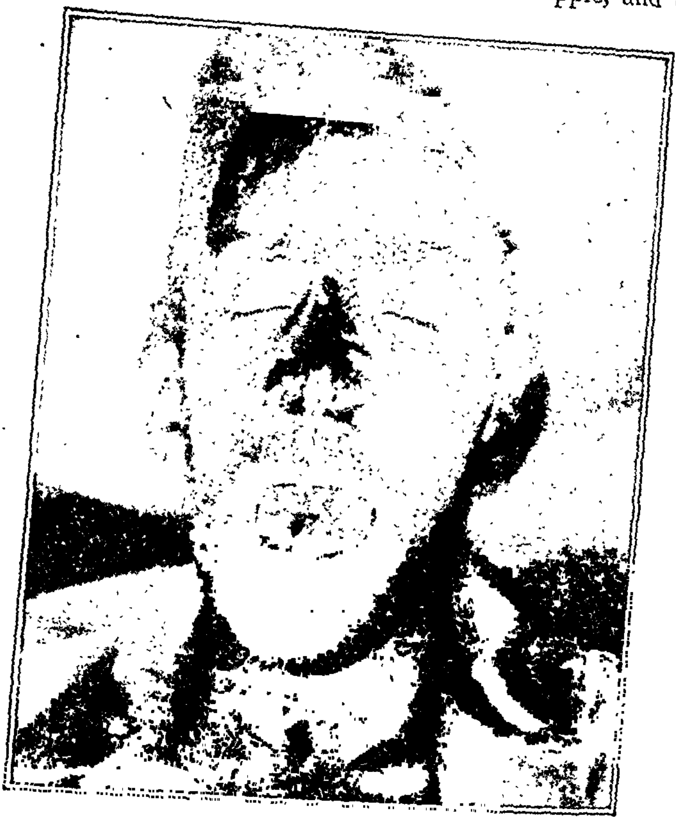
Fig. 6.—An unusual bullet wound. Sniper's shot at long range. Bullet entered at the bridge of the nose, penetrated the nasal fossa, hard palate and tongue and lodged in the tissues of the neck near the larynx. Patient recovered.

It has been repeatedly noted by medical officers that at moderate ranges the military bullet produces extensive and destructive wounds in its course of leaving the body. At longer ranges the bullet is more apt to lodge with less destructive effect, or simply to penetrate with little or none of the "explosive effect" noted at closer range.

In the matter of the bullet itself there are two factors concerned in the production of the maximum mutilation of tissue: *the high velocity of the bullet, and its power of penetration.* As previously shown, a light-weight bullet, such as the German bullet, must move with great velocity to develop such tremendous energy. Any factor reducing the velocity diminishes the energy. In flight the velocity decreases rapidly, and the energy much more rapidily, so that at 500 yards the energy is only one third of the muzzle energy; hence, it is only in the first few hundred yards of its flight that penetration with great energy is produced.

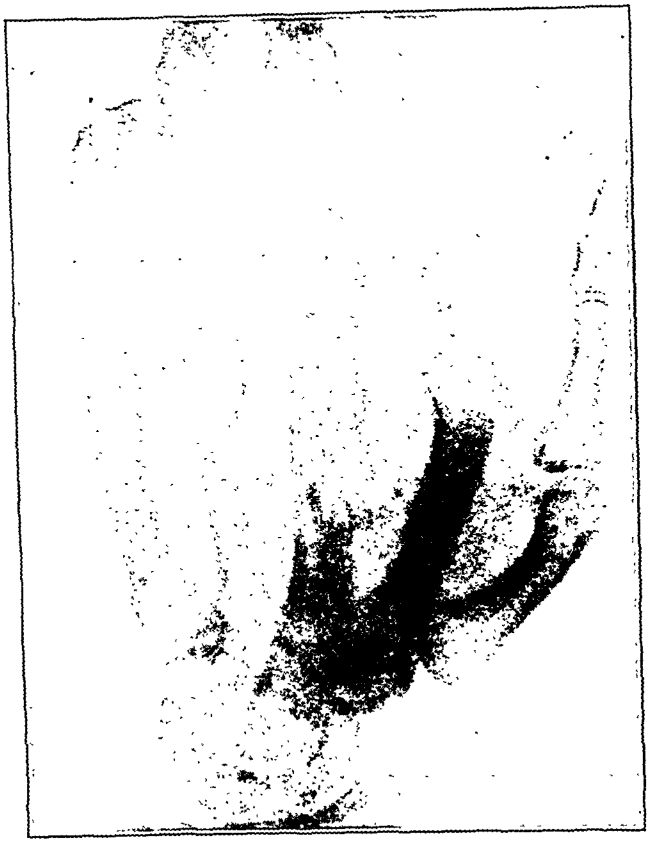

Fig. 7.—Comminution of the metacarpal bones with explosive effect of the bullet in the palm of the hand.

It is this penetrating bullet of high energy that produces the maximum destruction of tissue. The large mutilating, explosive wounds are wounds of exit, the entrance wounds being uniformly small. The most extensive wounds of this character are produced when the shaft of a bone is shattered and the fragments are driven out in the bullet's path.

The wound shown in Figures 3 and 4 was produced in just this way. A high velocity bullet entered the arm on the dorsal surface. The ulna was badly comminuted and fragments of the bone were driven out, literally tearing away the flesh.

In general, it may be said that the closer the range the less likely the bullet is to remain in the tissues and the more likely it is to produce the "explosive effect." It is within the first 500 yards that the "explosive effect" is most often produced.

A bullet on leaving the rifle barrel has two motions: forward motion in the line of flight, and a twisting motion on its longitudinal axis, imparted to it by the rifling of the bore. It is traveling at its maximum velocity and with least air resistance when only these motions are retained. In its flight it may acquire a third motion, a revolving or tumbling on its transverse axis, which, if it comes to pass, markedly slows the bullet and lessens its striking energy.

The turning of a bullet base foremost in the cartridge case reduces the accuracy of its fire, and, as it would travel with greatly diminished velocity, it is much less dangerous and much less destructive to tissue than a bullet in the proper position. The popular belief in the "dum-dum" action of a bullet of this nature is a fallacy.

SUMMARY

The modern military bullet is a projectile, composed in most cases of a lead core with a nickel jacket. It is of low weight, increased length, small caliber and is propelled at very high velocity by dense smokeless powder. It has a flat trajectory and develops tremendous striking energy.

COMPARATIVE BALLISTICS OF MILITARY CARTRIDGES IN USE BY THE BELLIGERENTS IN THE PRESENT WAR

Country	Name of Arm	Caliber (Inches)	Weight of Bullet (grains)	Jacket of Bullet	Core of Bullet	Muzzle Velocity, Feet per Second	Muzzle Energy, Foot-Pounds
France..........	Lebel........	.315	197	None	Solid copper bullet	2,296	2,305
England..........	Lee-Enfield (mark VII cartridge)	.303	174	Cupro-nickel	Lead	2,450	2,320
Germany.........	Mauser.......	.311	154	Ferro-nickel	Lead	2,915	3,018
Russia..........	Nagant, 3 line	.30	214	Ferro-nickel	Lead	1,985	1,862
Austria, Bulgaria and Greece	Mannlicher...	.315	244	Ferro-nickel	Lead	2,034	2,240
Belgium..........	Mauser.......	.301	219	Ferro-nickel	Lead	2,034	2,010
United States.....	Springfield, Model 1906	.30	150	Cupro-nickel	Lead	2,700	2,445
Italy.............	Paravicini-Carcano	.256	163	Ferro-nickel	Lead	2,295	1,891
Roumania........	Mannlicher...	.256	162	Ferro-nickel	Lead	2,400	2,070
Turkey..........	Mauser.......	.301	211.3	Ferro-nickel	Lead	2,066	2,003

The velocity, and consequently the energy, of this projectile decreases rapidly after the first few hundred yards of its flight.

It is at its highest energy before passing the 500 yard mark; hence, destructive and mutilating wounds are most commonly produced inside this range.

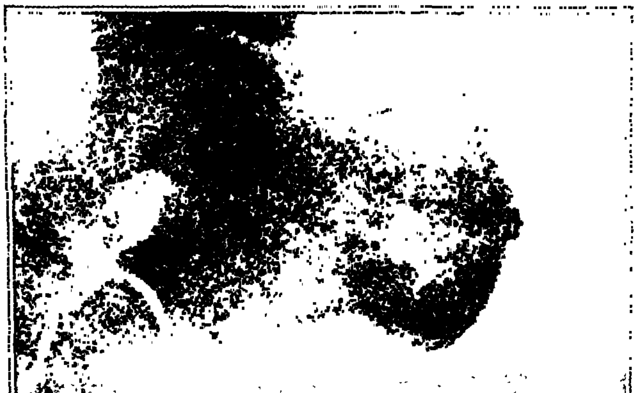

Fig. 8.—Penetration of the os calcis by a high energy bullet at close range but with little comminution or tissue destruction.

These destructive or explosive wounds are wounds produced at the exit of a bullet of very high energy.

At longer ranges the tissue destruction is much less, and a simple perforation may result.

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SATURDAY, OCTOBER 27, 1917

ACCLIMATIZATION TO THE TROPICAL SUN

Although our knowledge of the regulation of body temperature and its relation to metabolism has reached a stage at which an intelligent appreciation of many of the factors involved can be formulated, there are features of the heat-controlling mechanism that still demand elucidation. In several respects the climatic conditions that prevail in the tropics have furnished greater obstacles to the comfort of man than have the severe rigors of arctic surroundings. The problems of climatology in the tropics have become emphasized by the growing necessity of the white man's residing there and adjusting himself to the situations created by wind and weather. By some writers, tropical sunlight has been endowed with properties peculiarly detrimental to human health and comfort. The effect of the ultraviolet rays on the skin in the familiar production of the inflammation called sunburn, erythema solare, is not directly associated with heat. Indeed, it is often said to be more likely to occur in colder surroundings, owing, in part perhaps, to the fact that the heat of the sun's rays is not noticed, so that means are not taken to protect the skin to the same extent from their action.

Several years ago Aron, then professor of physiology in the College of Medicine and Surgery at Manila, reported an almost surprising series of observations on the susceptibility of the monkey, a tropical animal, to harm from direct exposure to the sun in the Philippines. Animals were reported to die in many cases in from seventy to eighty minutes when placed on the ground in the Manila sun, even in the coolest months of the year.[1] Shaklee,[2] pharmacologist at the University of the Philippines, has verified the observation that unclimatized Philippine monkeys exposed to the sun in Manila may die of heat stroke in the course of a very short time, depending on conditions.

Factors that must be taken into account in any attempt to determine the cause of a rise in body temperature or of death following exposure to the sun are the energy of the solar rays, and the temperature, the movement and the humidity of the air. Shaklee finds by direct observations that the conditions making for a rapid death are a hot sun; proximity of a large hot surface, such as the ground or a roof; high relative humidity of the atmosphere, and a low wind velocity. Under such circumstances death is due to an accumulation of heat in the body.

The novelty in Shaklee's studies is the finding that monkeys can apparently be acclimatized to the conditions mentioned, if exposure to them is gradual. This is of signal importance in relation to the comparable possibilities in the case of man; for the human organism seems in many ways far better adapted than the monkey's to resist the tropical climate. Shaklee points out that the temperature-regulating mechanism in man is much more sensitive than that in the monkey, as shown by the smallness of the normal variation of the body temperature in man as compared with that in the monkey. The sweating mechanism in man has many times the capacity of that in the monkey, and as the temperature of the surrounding atmosphere approaches the temperature of the body, this becomes the most important means of eliminating heat from the body. The internal heat production of man on a light diet is smaller in proportion to body surface than that of the monkeys subjected to this experiment. Man stands higher above the hot surface on which he rests or moves; hence he would receive less heat from the ground and be subjected to a more rapid movement of air over the body surface than would the monkey. Man's body has much less hair than the monkey's; hence the escape of heat from his body by radiation, conduction or evaporation is less interfered with. Man can so select and arrange his clothing that it will interfere little with the escape of heat from his body, while at the same time it will shield the body from the heat rays coming from the sun. Moreover, man is acquainted with a larger variety of foods.

The acclimatization to the tropical climate as experimentally accomplished in the case of the monkey appears to be due essentially to an increase in the sensitiveness of the nervous mechanism that regulates body temperature. This results in an increase in the rate or efficiency of sweating, producing what has perhaps falsely been termed an immunity. The "immunity" is readily lost if the subjects are kept in the shade. In harmony with the explanation advanced above is the fact that a small dose of atropin, which diminishes the action of the sweat glands, as well as other secretory structures, suffices to nullify the effect of any acclimatization and to cause the death of an acclimatized animal by stopping perspiration. The inference is further supported by the fact that when the relative humidity of the atmosphere is great, even acclimatized animals exhibit a tendency to a markedly greater rise in body temperature. Finally, attempts to acclimatize rabbits—a species not known to perspire—have thus far entirely failed.

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[1] Aron, H.: Philippine Jour. Sc., (B), 1911, 6, 110, 130.

[2] Shaklee, A. O.: Experimental Acclimatization to the Tropical Sun, Philippine Jour. Sc., (B), 1917, 12, 1.

Evidence has begun to accumulate that healthy white men may be readily acclimatized to the tropical climate at its worst. Shaklee maintains that the amount of sweating necessary to keep the body temperature of a healthy white man from rising above normal is not excessive, even when the man is doing considerable physical work in the midday sun in such a tropical climate as that of Manila, provided the man has been sufficiently long on a suitable diet and introduces himself gradually into the work in the sun. In the acclimatization of the white man the most important factor is the proper regulation of the diet. The effects from the tropical sun seem to be exactly the same as the effects from the sun in the United States; that is, no effects were seen or felt in these experiments that were different from what would have been expected under like circumstances in the northern portion of the United States.

THE STRENGTH OF DIABETICS

Although a person in the diabetic condition may be excreting valuable sources of energy, in the form of sugar and ketone substances derived from incompletely burned nutrients, there is no decrease in the quantities of energy transformed in contrast with a comparably healthy individual. There is merely an alteration in the source of the energy; for when carbohydrates can no longer be satisfactorily metabolized, other foodstuffs must be drawn on to supply the body's inevitable needs. Few diabetics can tolerate as much food as their former needs indicate to be essential. The modern starvation treatment of diabetes in the form advised by Allen, which introduces a rigorous regimen of fasting until the diabetic patient becomes free from urinary glucose and from acidosis, meets the energy problem in a direct way. The resulting emaciation apparently decreases the amount of active tissue substance. Calorimetric observations have shown that if a person whose metabolism is normal has been reduced in weight by 30 per cent., his metabolism when he is fed on a low dietary may also be reduced far below his normal level measured by his original weight or body surface. In other words, a smaller body can suffice with a small total intake of food. Emaciation may reduce the body to a size at which it can develop tolerance for the smaller requisite food quota.

Since in ultimate analysis the energy for muscular work comes from energy in the form of ingested food, the question has repeatedly arisen, What effect does the persistent use of a low diet have on the physical vigor of the diabetic? Muscular weakness is characteristic of the diabetic. What bearing has underfeeding on this feature in the case of patients obliged to subsist on a small allowance of food? The answer to this inquiry has been sought by Williams,[1] in a study of the influence of low diets, or the Allen method of treatment, on the physical vigor of diabetics. Strength tests were made by the use of the Collin dynamometer. It appears from the results, and in accord with common clinical observation, that diabetics, as a rule, are distinctly physically weaker than normal persons. Loss of body musculature may partly explain this, but it is probable that the lessened amount of food metabolized in these patients does not provide sufficient energy for the normal exercise requirements of the body. There appears to be a direct relationship between food tolerance and muscular vigor. As food tolerance increases, so does also muscular tone. Decline in food tolerance is accompanied by loss of physical vigor.

Williams further maintains that the continued use of a low diet for many months, even though it falls far short of the energy requirements of the body, provided it is within the physiologic limitations of the body to metabolize it, will cause an appreciable gain in muscular tone, although the amount of physical effort that such a person may be able to put forth may be considerably below the normal. This is in accord with clinical experience that nutrition within the tolerance of the patient gives the greatest comfort, strength and sense of well-being and, as Joslin has pointed out, the greatest expectation of life.

It is not long since the practice was common to urge the feeding of diabetics as freely as possible, in the hope of averting a loss of strength by promoting the greatest possible gain in weight. The new observations of Williams indicate that while diabetics living on a diet below normal physiologic requirements possess a diminished muscular vigor, feeding them beyond their metabolic limitations causes not only a further reduction in their tolerance for food, but also an even greater loss of strength. Thus the hope of improving a bad situation in such cases by overfeeding may well be abandoned.

THE ACTIVE PRINCIPLE OF THE HYPOPHYSIS

The physician who is not extremely well versed in the modern biochemistry of animal tissues might easily draw the conclusion from clinical literature, particularly of the advertising sort, that the "active principles" of various glands and secretions are definitely known and readily isolated. The fortunate circumstances of the separation and complete identification of such a substance in the case of the epinephrin of the suprarenals has given the impetus for further attempts of the same sort. Names have not been lacking for the anticipated "principles"; and occasionally a proposed designation has crept into print in advance of any bona fide production of a truly corresponding active substance. It need not be denied that extracts and other preparations of glands have been prepared in a state of pronounced physiologic potency and corresponding therapeutic value. But this is something as remote from the production of a chemically defined compound of recognized composition as is the isolation of the crystalline alkaloid morphin from gum opium.

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[1] Williams, J. R.: The Effect of Undernutrition on Muscular Force: A Study of the Influence of Low Diets, or the Allen Method of Treatment on the Physical Vigor of Diabetics, Arch. Int. Med., September, 1917, p. 399.

Attention has been called by Abel and Pincoffs[1] to misleading claims or beliefs of the sort just indicated, in relation to preparations of "active principles" of the pituitary gland. Thus one widely heralded product claimed by its sponsor to be a "solution of the isolated active substances of the pituitary gland," far from being a mixture of crystalline compounds of high physiologic activity which would justify a designation indicative of chemical unity, is shown to be at best a mixture of proteoses (and possibly peptones) with varying and unknown amounts of active and inactive constituents of the glands.

A study of various commercial pituitary preparations in the laboratory of the Baltimore investigators showed that secondary proteoses and possibly peptones (or polypeptids, if the term is preferred) were present in all of the therapeutically used extracts of the posterior lobe of the hypophysis cerebri that were examined. To what extent the proteose content of the gland may have been increased by autolysis or by processes incidental to the manufacture of the extracts it is impossible to state. It is believed, nevertheless, that the perfectly fresh, bloodless glands yield proteoses, since Abel and Pincoffs have actually isolated such substances from the thyroid gland and other organs when taken from the animal immediately after it has been bled to death.

It would be unfair to assert that every producer of pituitary commercial extracts claims to offer a product free from protein and containing absolutely nothing but potent gland constituents. As a matter of fact, however, those examined do contain adventitious substances. In answer to the inquiry naturally provoked by these findings, Abel and Pincoffs have found that the proteoses isolated from pituitary extracts are practically devoid of oxytocic or uterine contracting action. These protein substances do not constitute the "motiline"[2] that effects the well known activity of suitable pituitary extracts as uterine stimulants.

According to Abel and Pincoffs, and contrary to current teaching, proteoses are present in more than one tissue of the body. Proofs of their existence in gastric and intestinal extracts also has been obtained. The isolation of the hormones found in various active tissues will require a preliminary removal of the proteoses — a task of considerable technical difficulty. Abel and Pincoffs have been able to prepare an extract of the gastric and intestinal mucosa which has a pressor action for the circulation and a marked oxytocic power in a concentration of 1 : 1,000,000. This powerful action points strongly to the conclusion that here also, as in the case of pituitary extracts, we are dealing with a motiline which, in a state of chemical purity, would be fully as active as beta-imidoazolylethylamin. And this again leads to the supposition that the oxytocic principle (or motiline) of the hypophysis is not a hormone or substance specific to this organ, but is rather a widely distributed substance, everywhere the same, which may have its origin in the various tissues, in the gastric or intestinal mucosa, or which may be absorbed as such from among the products of digestion. In any event, we may well agree with the Johns Hopkins pharmacologists that the active principles of the hypophysis cerebri have not yet been isolated as chemical individuals.

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[1] Abel, J. J., and Pincoffs, M. C.: On the Presence of Albumoses in Extracts of the Posterior Lobe of the Hypophysis Cerebri, Proc. Nat. Acad. Sc., 1917, 3, 507.

[2] This word has been coined in evident analogy with "secretine," the hormone which promotes *flow* of secretions, to indicate a contraction-producing hormone.

FRUIT ACIDS

Although fruits are held by some persons to be a luxury rather than a dietary necessity, they have recently come into a greater popularity than ever before in the ration of man. The typical American breakfast provides for fruits of some sort as a part of the menu. They enter likewise into the larger meals of the day, and thus secure prominence whether it be because they are regarded as stimulating to the appetite, as endowed with laxative properties, as sources of actual nutriment, or merely as adding a pleasing variety to the diet regardless of any unique dietary virtues. Almost all fruits contain sugar. Experts in nutrition at the present time are inclined to assert that fresh fruits and vegetables, although watery, are convenient sources of many of the substances which are needed by the body in small amounts. Quoting a government publication,[1] it is, in fact, generally believed that, unless these foods are used to some extent, the diet will be lacking in mineral materials and in other important growth and health promoting substances. They are, however, not important sources of fuel. They contain little protein and no fat. The evidence of the extent to which fruits are used lies in the fact that the crop is valued at considerably over 200 million dollars, of which the major share belongs to the orchard fruits. Nearly 200 million bushels of apples alone are produced in the United States each year.

All of the fruits contain noticeable amounts of organic acids, varying with the species involved. As a general rule the acidity tends to decrease with the progress of the ripening. The nature of the acids present has hitherto been anything but accurately determined. In a general way it has been the custom in some quarters to distinguish between highly acid and "subacid" varieties—distinctions of a quantitative rather than a qualitative character. The acidity of fruits is said to be largely due, not to free acids, but to acid salts, of which the acid potassium tartrate (cream of tartar) of grapes may serve as an example.[2] However, more than an incidental interest attaches to these questions. Not only may different acids have unlike rôles in promoting some of the effects, such as laxative action, now vaguely assigned to fruits; but there is reason to believe that some of the fruit acids, such as tartaric and benzoic, are oxidized with difficulty if at all in the body. The more readily burned fruit acids act to promote potential alkalinity; for when the organic radicals are oxidized to carbon dioxid and water, so much of any base as was combined with the organic acid remains as a carbonate. Thus, contrary to the popular belief, in metabolism most of the acid fruits actually function as base-forming foods. In accord with this the use of fruits tends to diminish the acidity of the urine, except in those cases in which, owing to incomplete oxidation of the fruit-acid in the system, the potential alkalinity is not fully realized. Blatherwick[3] found, for example, that such foods as oranges, raisins, apples and bananas are very efficient in reducing the acid output. A further importance of the fruit acids is associated with the part they play in jelly making.

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[1] Hunt, Caroline L.: Fresh Fruits and Vegetables as Conservers of Other Staple Foods, U. S. Dept. Agr., Farmers' Bull. 871, July, 1917.

The Bureau of Chemistry of the United States Department of Agriculture has undertaken a critical investigation of the acid content of fruits. The chemists, Bigelow and Dunbar,[4] state that the burden of evidence in the literature indicates that tartaric acid is not an ingredient of fruit juices except, of course, grape juice. Citric and malic acids are the characteristic acids found. Succinic acid may occur in small quantities, especially in unripe products. Salicylic, benzoic and formic acids have been reported now and then to occur in traces, the presence of benzoic acid in cranberries and plums being more conspicuous. The acids of some of the fruits like the apricot have not been positively identified. The behavior of citric, malic and tartaric acids in metabolism has recently been discussed in some detail in The Journal.[5] The tentative conclusions reached by the government bureau indicate the following results:

Fruit	Acids found
Apple	Malic only.
Banana	Probably malic only.
Cantaloupe	Malic none—probaby all citric.
Cherry	Malic only.
Cranberry	Citric probably predominates—malic also present.
Currant	Citric probably predominates—malic sometimes present.
Gooseberry	Malic and citric.
Peach	Probably malic only.
Pear	Malic only in some varieties; citric probably predominates in others with small amounts of malic.
Persimmon	Probably malic only.
Plum	Malic only.
Pomegranate	Probably all citric—no malic or tartaric.
Quince	Malic only—no citric.
Raspberry (red) ..	Probably citric only—malic, if present, in traces only.
Watermelon	Malic, no citric.

Bigelow and Dunbar say that these generalizations are not offered as final statements. It is possible that later work may modify them in some particulars. Undoubtedly traces of acids other than those here considered occur in many fruits, and it is possible that these may sometimes be found in important quantities. They add that the results obtained with pears emphasize the danger of drawing general conclusions as to the acid content of fruits from the analysis of a limited number of varieties or even of a limited number of samples. It is believed, however, that the general conclusions drawn from those cases in which a considerable number of samples were examined are correct.

THE TOXICITY OF ULTRAVIOLET LIGHT

Ultraviolet light can give rise to a large number of photochemical reactions. It is not surprising, therefore, to find that it is active also on protoplasmic systems. It has long been known that various small animals such as are found in fresh water flee from places illuminated by ultraviolet light. Under suitable conditions it has a lethal effect on micro-organisms; hence the plan of using ultraviolet radiation for the sterilization of water. To the physician the effect of this form of light waves is familiar through its manifestations on the skin. It is responsible for the inflammation called sunburn (erythema solare). The care taken to protect workmen in electric welding by having them wear spectacles impermeable to light of short wave lengths, and frequently to protect parts of the skin that are exposed, is due to the fact that the arc spectrum of iron is very rich in ultraviolet lines. Ultraviolet light has furthermore already found employment in therapy. It is a remarkable fact that the excitability to ultraviolet rays is independent of temperature—a fact which substantiates the view that they promote their effects by a photochemical reaction, the products of which may excite suitable receptive organs or structures in the skin or elsewhere.[1]

The greater number of the constituents of living cells do not absorb rays of the wave length of visible light. Many of them, however, absorb ultraviolet light so that, as Bayliss remarks, it is not surprising to find that radiations of this kind have a very powerful effect on living cells as a rule. In a study of the possible origin of the toxicity of ultraviolet light, Harris and Hoyt[2] of the University of California point to the general law of photochemical action that only those rays are effective which are absorbed by the system in which the reaction occurs. Visible light rays are not, as a general rule, selectively absorbed by protoplasm, and hence their action is usually confined to specialized pigmented areas which constitute the receptive elements of optical sense organs. Ultraviolet light, on the contrary, is generally highly toxic, even for colorless organisms. Since this toxicity presumably depends on photochemical reactions and is attributable to them, the question presented itself to the California investigators as to the constituent of the protoplasm to which we are to attribute the selective absorption of these rays which is the necessary precedent of their photochemical activity. Various considerations that need not be rehearsed here point to the proteins as the participants in this phenomenon. Kober[3] has confirmed the existence of an absorption band in the ultraviolet in solutions of the amino-acid tyrosin derived from proteins, and also finds that a similar band is exhibited by solutions of phenylalanin. The other amino-acid constituents of the protein molecule exhibit only general (that is nonselective) absorption in the ultraviolet spectrum.

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[2] Sherman, H. C.: Food Products, New York, 1914, p. 352.

[3] Blatherwick, N. R.: Specific Rôle of Foods in Relation to Composition of the Urine, Arch. Int. Med., September, 1914, p. 409.

[4] Bigelow, W. D., and Dunbar, P. B.: The Acid Content of Fruits, Jour. Industrial and Engineering Chem., 1917, 9, 762.

[5] The Behavior of Malic Acid in the Body, editorial, The Journal A. M. A., July 7, 1917, p. 44; The Behavior of Three Organic Acids in the Body, March 31, 1917, p. 984.

[1] An interesting account of the behavior of ultraviolet light is found in W. M. Bayliss' Principles of General Physiology, London, 1915, p. 569, from which some of the facts given are cited.

The possibility is thus indicated, Harris and Hoyt further remark, that the tyrosin and phenylalanin radicals of the proteins constitute the optical sensitizers which render living cells susceptible to the toxic action of ultraviolet light. If this should prove to be the case, then, they say, passage of the light through solutions of proteins or the aromatic *amino*-acids should, by absorption of the toxic rays, to a greater or less extent deprive the light of its toxicity for protoplasm. An experimental study of the rate at which lower living organisms on exposure to ultraviolet rays are exterminated when living in water, in contrast with a medium containing various organic substances, showed a surprising protective action on the part of some of these. The results obtained by the California investigators are, as they express it, decidedly in harmony with the view that the susceptibility of protoplasm to ultraviolet light is conditioned by the selective absorption of the toxic rays by the aromatic *amino*-acid radicals of the proteins.

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[2] Harris, F. I., and Hoyt, H. S.: The Possible Origin of the Toxicity of Ultra-Violet Light, Science, 1917, 46, 318.

[3] Kober, P. A.: Spectrographic Study of Amino-Acids and Polypeptides, Jour. Biol. Chem, 1915, 22, 433.

Specialization in Military Hospitals.—According to the *Nederlandsch Tijdschrift*, Strauss of Berlin has been appealing to the authorities to distribute the sick and wounded in the hospitals by special groups, as this would materially facilitate the service. All with stomach affections and chronic dysentery, requiring a special diet, should be collected in one hospital. Men with trench nephritis should be separated into two groups, the mild and the severe cases. The idea is already realized to a certain extent in many quarters, but he insists that it should be carried much farther as a great aid to efficiency.

Current Comment

WAR SESSION OF THE CLINICAL CONGRESS

The Clinical Congress of Surgeons of North America, in its eighth annual session at Chicago, was a war session. The clinics of each day, held in the various hospitals, were in large part devoted to demonstrations of war methods, of the new antiseptics, of the new treatment for war burns, and of the handling of cases of shock. But the outstanding features were the afternoon and evening sessions. These brought home to the auditors the imminence of America's active participation in the war. Many of the audience were in uniform—on active duty—and on the speakers' rostrum at each session sat representatives of the medical departments of our Allies, France and Britain, and the Surgeons-General of our own governmental departments. At the opening session, Monday evening, the medical profession responded with repeated outbursts of the greatest enthusiasm to the patriotic utterances of the noted speakers. Even the most doubtful skeptic would have been convinced at that session that the American medical profession is in the war wholeheartedly, and resolved to do its "best" rather than merely its "bit." The greatest outburst of all occurred with the announcement that 18,000 physicians have offered their services, without conscription, to the government, and that special conscription of the medical profession would not be needed. Meetings of this character give to those who attend a perspective as to the stand which the medical profession is taking on problems of the day; at this time, particularly, they give a stimulus to all as to the need of complete and hearty cooperation with the government in the ordeal which it faces; above all, they stimulate in each individual a spirit of self-sacrifice and willingness to "do his bit." This is the greatest service which organizations may render to their members and to the public, and that this is recognized is evident from the statement of Surgeon-General Gorgas that organized medicine has given more aid than any other civilian agency to America's successful activities thus far in the war.

THE CHEMICAL STRUCTURE OF NUCLEIC ACID

The bustle of a busy world, particularly in war time, is likely to leave us oblivious to the beauty or the importance of happenings which do not show on the surface their direct application to everyday affairs. Yet even a brief consideration of the fundamentals of such modern necessities as the dynamo, the wireless, the coal tar dyes or the antiseptics, will carry us back to the little heralded research of some quiet investigator in a modest laboratory. In a spirit of dutiful recognition of important contributions of this sort we cannot refrain from reference to a series of investigations on the chemical structure of the nucleic acids, culminating in recent papers from the laboratory of physiologic chemistry at the Johns Hopkins University.[1] To the biologist the nucleic acids are familiar as integral components of every nucleated cell in living beings; to the physician they further recall the purins, which play a part in the genesis of uric acid. Recent studies have definitely indicated that there are two distinct types of nucleic acids, one of which is found in animal tissues and the other in plants. Our knowledge of plant nucleic acids has been acquired from the study of products from two sources; the wheat embryo and yeast. It has now been ascertained that these plant nucleic acids are probably identical.[2] They are composed of the groups of four mononucleotids (compounds of a nitrogenous substance [either a purin or a pyrimidin], a carbohydrate and phosphoric acid) joined together through their carbohydrate groups. The details of such chemical structure would probably interest most of our readers as little as the intricacies of modern experimentation in the science of immunology on which much useful serum therapy has been based. No one will gainsay, however, that the unraveling of the structure of a compound represented by the empiric formula $C_{38} H_{55} N_{15} O_{29} P_4$ is no mean accomplishment. And to associate this splendid labor largely with the names of American investigators — Osborne, Wheeler, Johnson, Levene, Jacobs, Jones and others — lends a national pride to the accomplishment.

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[1] These have been published by Walter Jones and his collaborators in the Journal of *Biological Chemistry*, 1915 to 1917.

UNWISE ECONOMIES IN DIET

The desire to cooperate with the national Food Administration in its efforts at conservation, and above all the attempt to meet the high cost of living, are leading thoughtful persons throughout the country to scrutinize every phase of the food question. Women, says Miss MacKinnon[3] in "A Lesson in Buying," have fought shy of the phrase "food values," and have preferred to "buy food"; but in these strenuous days the very best service many a woman can render is determined by her ability or inability to manage her food supply. Personal and national necessity is laid on many a woman to make of herself a wise buyer. In many respects—perhaps it should rather be stated, fundamentally—the food problem is one of supplying digestible stores of energy. There is some danger, however, that the calorie may sometimes assume an unwise domination in the selection of human food supplies. It is admitted that conservation should never mean undernourishment or malnutrition; but to avert possibility of these more remote dangers, wise buying of food must sometimes look beyond the energy measure in the selection of the dietary. We are impelled to this remark by reading the advertisement of a cereal food in a current journal addressed essentially to medical readers. The admonition is given to "Eat food that will give you the most energy for the least money." We may accept this advice and likewise admit the statement that "calories measure food energy the same as dollars measure money." But when it is further added that 35 cents' worth of the advertised product will furnish 3,000 calories, a day's need, the implication of the sufficiency of this exclusive product as the sole constituent of the ration must be seriously questioned. It may be true, as the advertisement proudly proclaims, that more calories can be purchased in the form of the vaunted products for 10 cents than is the case in buying sirloin steak, lobsters, bananas or even milk. Such standards of dietary management and menu making are objectionable, however, if they lead to a tendency to "one-sided" regimens. To accept the advice, whether openly stated or implied, to live on a single dietary article, however inexpensive and digestible it may be, is to overlook the fundamental principles that are satisfied by variety in the diet. The fruits and green vegetables may be comparatively expensive when judged solely as sources of food fuel; but they furnish salts and vitamins and "roughage" or "ballast," adding suitable bulk to highly concentrated foods like the cereals, meats, fats and milk products. No cereal or meat offers any considerable supply of lime to the organism; nor are the cereal proteins taken as a whole and by themselves ideal combinations from the standpoint of the present day science of nutrition. The vegetables and fats are appropriate supplements to make a better balanced diet. In his aphorisms applicable to food conditions in war time, Bayliss[4] has said, "Take care of the calories, and the protein will take care of itself." Yet this accomplished physiologist wisely guards against misunderstanding by adding that it is well to insure the presence of accessory factors by taking fresh fruit and salad. Let the novice be cautious in accepting the invitation of the food advertiser when the latter overlooks the advice of the student of nutrition. Without being limited to any single item of food, let us see whether, in the words of Lusk, "we have the intelligence to fitly utilize for the welfare of mankind the resources which God and nature have placed in our hands."

ISOLATION OF TETANUS TOXIN

Heretofore tetanus toxin and other toxins as well as ferments have defied the efforts to isolate them from the mixtures in which they naturally occur. For this reason we know little of the real nature and chemical structure of these remarkable substances; but a way to progress seems to have been found, as London and his co-workers in the Institute for Experimental Medicine in Petrograd[5] now report that under certain conditions tetanus toxin and pancreatic ferments may be carried down on colloidal particles. They find that by the addition of 17 per cent. of ammonium sulphate to culture fluids in which tetanus bacilli have been growing; by centrifugation, the resulting sediment being thrown away; and then by the addition of from 1 to 3 per cent. more of ammonium sulphate, a sediment is obtained which contains the tetanus toxin. This sediment may be dried in vacuum and rinsed repeatedly with ammonium sulphate without thereby reducing the toxicity of the toxin, as minute a quantity as 0.00000002 gm. being fatal for white mice in two days after subcutaneous injection. They also report that by a similar treatment of pancreatic juice with 20 per cent. ammonium sulphate, the amylolytic ferment may be secured in what looks like a practically pure form, while with 30 per cent. the proteolytic ferment, and with 50 per cent. the lipolytic ferments are carried down. These remarkable results indicate that under certain conditions, which vary in each case, tetanus toxin and pancreatic ferments attach themselves to particles and thus become obtainable in nearly pure form. This discovery may mark a long step in advance in the study of toxins and ferments in general, the same principles no doubt being applicable to many other toxins and ferments than those mentioned.

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[2] Read, B. E., and Tottingham, W. E.: Tritico Nucleic Acid, Jour. Biol. Chem., 1917, **31**, 295.

[3] MacKinnon: Experiments in Teaching Food Values, Bull. 49, University of Illinois, Aug. 6, 1917.

[4] Bayliss, W. M.: The Physiology of Food and Economy in Diet, London, Longmans Green & Co., 1917.

[5] London and Aristovsky: Russk. Vrach, 1917, **16**, 341. London and Pakhotina: Ibid., p. 342.

THE CONTROL OF CHILD MORTALITY IN ENGLAND

The causes of high child mortality, particularly in the earliest years of life, are attributed to quite different circumstances by persons approaching the subject from somewhat different standpoints, traditions or experience. The fact is that the circumstances are undoubtedly both numerous and complex, varying with localities as well as with different strata of society. In any attack on a problem of great complexity, it is usually helpful to take into careful consideration the views of those who have had large experience and responsibility in the matter. Hence we are impelled, in connection with a topic that seems trite to some but is nevertheless always before us for earnest debate, to refer to a comparatively recent report of Sir Arthur Newsholme,[1] medical officer to the Local Government Board, London. He offers these comments: Maternal ignorance is sometimes regarded as a chief factor in the causation of excessive child mortality. It is a comfortable doctrine for the well-to-do person to adopt, and it goes far to relieve his conscience in the contemplation of excessive suffering and mortality among the poor. This doctrine has found favor in occasional official reports and in miscellaneous addresses. It embodies an aspect of truth, but it is mischievous when it implies, as it sometimes does, that what is chiefly required is the distribution of leaflets of advice, or the giving of theoretical instruction as to the matters of personal hygiene. Of course, carelessness (the detrimental effects of which the British authority places above ignorance), intemperance, poverty, overcrowding, defective sanitation, industrial employment of married women, the large size of the families of the poor, and other factors enter into consideration in any study of unnecessary child mortality. But in contrasting the wives of the wage-earners with the wives of men belonging to other classes, Newsholme has arrived at the conviction that the difference, apart from the handicap of the former in respect of housing, food supply and sanitation, in the main is one of ability to secure the assistance required in the various contingencies of maternity and early childhood. In England the chief means for rendering this assistance are furnished under the Midwives Act and the Notification of Births Acts. The notification within thirty-six hours enables visits to be made on behalf of the public health authority as early after notification as is thought necessary. The Midwives Act regulates the practice of midwives who attend more than half of the total confinements in England and Wales, these being as a rule the cases in which the additional medical and nursing assistance already referred to are most needed.

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[1] Forty-Fifth Annual Report of Local Government Board, 1915-1916, supplement containing report on child mortality at ages from 0 to 5, in England and Wales, H. M. Stationery Office, London, 1916.

THE GASTRIC SECRETION IN INFANCY

It seems to be well established at present that the glands which secrete gastric juice in adults are rarely idle. Even during starvation there is a detectable production of typical gastric secretion — of what Carlson has termed the hunger juice. In adult man the acidity of this fluid tends to be lowered by the regurgitation of alkaline pancreatic and intestinal secretion through the pylorus into the stomach. Taylor[1] has recently discovered that this formerly unsuspected secretion of gastric juice proceeds in the empty stomach of infants also. The acid thus poured out is often as concentrated as that found in the adult stomach during hunger. The secretion contains pepsin; and the more profuse it is, the higher its acidity appears to be. In contrast with what is believed to be the case in the adult, however, Taylor reports that this secretion in the infant is not neutralized in the stomach, but flows out into the small intestine. Regurgitation through the infant's pylorus does not occur. The stomach of a starving infant can apparently secrete from 50 to 200 c.c., or more, of highly acid juice daily. This equals, as Taylor remarks, the amount Engel obtained in his case of pyloric stenosis, which has served as the clinical basis for the theory that hyperacidity or hypersecretion of the gastric juice is an etiologic factor in that disease. In the light of the fact that active gastric juice seems to be available in unexpected quantity and potency, we can understand Taylor's contention that the theoretical objections to tube feeding in premature infants no longer are valid. Deprivation of food is frequently used as a remedial measure in certain digestive disturbances. Taylor suggests that therapeutic starvation in acute alimentary disorders and in summer diarrheas may owe its success in part to the heightened tonus of the alimentary tract, and in part to the pouring out of highly acid detoxicating and disinfecting gastric juice into the small intestine.

PRIMARY TUBERCULOSIS OF THE TONSILS

In recent years the tonsils have been regarded as the portal of entry for many diseases, but it does not appear that examination of tonsils after removal has yielded much information of value in regard to their supposed relationship to disease elsewhere. Mitchell,[2] however, has recently published some interesting observations from Edinburgh on primary tuberculosis of the faucial tonsils obtained from children with tuberculosis of the upper cervical lymph nodes, and from children with enlarged tonsils only and without evidence of tuberculosis of the cervical glands or elsewhere. In the first group were 100 children and six adults. In no case was it possible to establish the presence of tuberculosis prior to removal and examination of the tonsils. The tonsils were rarely painful, and there were no symptoms except swelling of the upper cervical nodes, which in about one fourth of the cases was slight and in the rest rather extensive. On microscopic examination forty-one, or 38 per cent., of the tonsils were definitely tuberculous. Animal inoculation in ninety-two cases gave twenty positive results, the bovine type of bacillus being isolated in sixteen. There were 100 cases, all in children, in the second group with enlarged tonsils only. The cervical glands were palpable in all. Microscopically nine of these tonsils were tuberculous also, all nine giving positive results on inoculation. The type of organism in four was bovine, in two human, and in three undetermined.

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[1] Taylor, Rood: Hunger and Appetite Secretion of Gastric Juice in Infants' Stomachs, Am. Jour. Dis. Child., October, 1917, p. 258.

[2] Mitchell, A. P.: Primary Tuberculosis of the Faucial Tonsils in Children, Jour. Path. and Bacteriol., 1917, 21, 248.

The tubercles in the tonsils were situated near the deeper portions of the crypts, and also directly beneath the surface mucosa as well as deep in the tonsil close to the capsule, the first two being the favorite locations. The position of the majority of the tuberculous foci in places within easy access of the oral cavity may be taken as suggesting infection by way of the mouth rather than by way of the blood or lymph by backward transport. The absence of any signs of pulmonary tuberculosis in such cases as these studied by Mitchell may be regarded as evidence that the lesions in the tonsils are primary and not the result of infection from the sputum, and also that the cervical lymph nodes are probably secondarily infected from the tonsils. The latter conclusion would point to the necessity of removal of the tonsils in operation for removal of tuberculous cervical lymph glands. The importance of the milk supply as a source of the infection in cases of tonsillar tuberculosis is emphasized by the fact that in many instances in the series under consideration the infecting organism was of the bovine type. Indeed, the results recorded by Mitchell, which are of special interest because of the large number of cases in which he found tuberculosis, should stimulate to other and even more extensive studies of tonsils, removed for whatever reason, in order that their relation to tuberculous infection and possibly also to other conditions may be determined still more precisely than is the case at the present time.

War and the Activation of Health Interests.—The problems of tuberculosis, venereal disease, insanity and recreation, which, even with all our highly intelligent and energetic propaganda, have hitherto interested only a handful of specialists, comparatively speaking, have suddenly become the common concern of all the branches of the federal and state governments which have anything to do with the fighting forces, and of everybody who has a son or brother or sweetheart, or even a mere acquaintance, in khaki or serge or linen. The prospects are that the American soldier will be the most "protected" and best cared for individual that the world has ever seen, and that there will be protection and care left over for at least a part of the civil population.—The *Survey*.

Medical Mobilization and the War

IN FLANDERS' FIELDS

In reproducing in these columns, October 6, the poem "In Flanders' Fields," by Dr. John McCrae, Montreal, now in France, it was stated that the poem had appeared in the New York *Times*, credited to Capt. John "McRae." In its issue for the same week—October 3—the *Outlook* published the poem under the caption "From His Note-Book," with the following note:

> In a note-book found upon the body of Second Lieutenant A. H. W. Beatty, of the Manchester Regiment, says "Answers," the following verses were found. He had evidently jotted them down shortly before the action in which he met his death. There is something prophetic in them—as though the writer had some foreknowledge that his own time was coming.

The original publication of "In Flanders' Fields" was in *Punch* (London), Dec. 8, 1915, page 468. It appeared anonymously—the common practice of *Punch*—the name of the author being given only in the index of the volume. There it is credited to "McCree, Lt. Col. John"—evidently a typographical error. It is curious that in both *Punch* and the New York *Times* the author's name is spelled incorrectly, and in each differently.

Below is another poem by Lieut.-Col. John McCrae, from the *Spectator* (London), June 30, 1917:

THE ANXIOUS DEAD

O guns, fall silent till the dead men hear
Above their heads the legions pressing on;
(These fought their fight in time of bitter fear
And died not knowing how the day had gone.)

O flashing muzzles, pause, and let them see
The coming dawn that streaks the sky afar:
Then let your mighty chorus witness be
To them, and Caesar, that we still make war.

Tell them, O guns, that we have heard their call,
That we have sworn, and will not turn aside,
That we will onward till we win or fall,
That we will keep the faith for which they died.

Bid them be patient, and some day, anon
They shall feel earth enwrapt in silence deep,
Shall greet, in wonderment, the quiet dawn,
And in content may turn them to their sleep.

—John McCrae.

Physicians Recommended for Commission in the Medical Reserve Corps

During the week ending October 20, 224 physicians were recommended to the Adjutant-General of the Army for commission in the Medical Reserve Corps, the proportion being forty-two captains and 182 lieutenants.

New Red Cross Director-General

Jesse H. Jones, Houston, Texas, has been appointed director-general of military relief of the American Red Cross to succeed John D. Ryan, who was recently appointed to membership on the War Council.

Albany Competes

Dr. Henry L. H. Shaw, Madison Barracks, New York, enters the name of Albany in the competition of cities marked by patriotic physicians. In Albany there are 176 physicians, of whom 148 are members of the County Medical Society; forty-six have received commissions, and forty-one are now in active service; fourteen have been rejected on account of physical disability, age, etc. This gives a percentage of 26 for all physicians, and 31 for members of the County Society, not including those whose applications were rejected.

New Jersey State Society Contributes to Belgian Relief

The Journal is informed by the Belgian Relief Committee of the Emergency Aid of Pennsylvania that the Medical Society of New Jersey, through its treasurer, Dr. Alexander Mercer, Newark, has contributed $1,000 for Belgian relief. This contribution has been forwarded to the Belgian Minister of State, Monsieur de Sadeleer, to be used to aid the Belgian children who are ill and destitute. In order to save the lives of these children it has been necessary to take them out of invaded Belgium for a little while, and a special arrangement has been made through the Dutch legation so that this work is systematically carried on like the "Country Week" plan. The children are taken to Holland, fed, nourished and brought back to health, and then returned to their parents.

Unit of Women for France

The first unit of women doctors and dentists for service in a base hospital in France has been equipped by the Women's Hospital, New York, under the direction of Dr. Rosalie Slaughter Morton, president of the Women's Hospital, and Dr. Elizabeth Johnson Van Slyke, superintendent. The members of the unit are: Drs. Dorothy Child and Florence C. Child, both of Philadelphia; Ethel Lyon Heard, Galveston, Texas; Esther L. Blair, Dixmont, Pa.; Esther E. Parker, Cornell, N. Y.; Marion L. Stevens, New York City; G. F. Nevins and Helen L. H. Woodroffe, San Francisco, and deLam Kinney, New York City, a dentist. Miss Martha Townsend, a graduate nurse of the Women's Hospital, who has served with the Fourth Canadian Contingent at Saloniki and has the rank of lieutenant in the Canadian Army, will accompany the unit, which is now fully equipped and will soon sail for France.

Government Control of War Risk Beneficiaries

In the Congressional Amendment to the Act of Sept. 2, 1914, establishing a Bureau of War Risk Insurance (H. R. 5723), there is ample provision for insuring the families of enlisted men who are war risks in the Army and Navy under present conditions. There is due compensation of widow and children for loss of support by death or disability, and paragraph 3 of section 302 (p. 10), states that the injured shall be provided, where necessary, with governmental medical, surgical and hospital service, and with artificial limbs, trusses and other appliances, "*Provided*, That nothing in this Act shall be construed to affect the necessary military control over any member of the Military or Naval establishments before he shall have been discharged from the Military or Naval service."

In other words it will not be possible to defraud the government through any of these channels, since all beneficiaries of the government through the European war will remain under military control until their relation with the government ceases.

Confers Degrees on Distinguished Foreign Medical Officers

On Convocation Day, October 12, the University of Michigan conferred the degree of Master of Arts on the following representatives of the medical profession among our allies: Capt. John Gilmour of the British Army: contributor to the epidemiology of the plague; decorated by his king for distinguished service in South Africa and in Flanders; Major Edouard Rist of the French Army: member of the Legion of Honor; at one time in charge of the quarantine station at Suez; well known authority on tropical diseases and on tuberculosis; Col. Thomas Herbert Goodwin of the British Army: distinguished scholar and soldier; possessor of the Order for Distinguished Service and commander of the Order of St. Michael and St. George; one of the few survivors of the first British force in France; gentle in word and in manner, resolute in action; Col. Charles Dercle of the French Army: member of the Legion of Honor; recognized student of Arabic, author of a French-Arabic dictionary; received ninety-seven separate wounds from a shell explosion at one time; distinguished scholar and soldier.

French Medical Students and the War

The *Presse médicale* of October 6 reproduces the decision recently voted at a conference of representatives of the medical department of the army and of the medical departments and deans of the various universities and the schools of pharmacy, with the undersecretary of state for the medical department in the chair. It was arranged that for the first year students, who are to be summoned next April, the practical work for the whole year is to be crowded into the winter semester, thus enabling these students to pass before April their examination in this line for the whole year. For those already in army service, this instruction is to be given in the army zone so far as it does not interfere with military exigencies. The examinations are to be held by a university examining board, including also a regular army medical officer. This will enable the candidates to win, according to their status in the examination, military titles corresponding to corporal, sergeant, etc., in the other branches of the army. A new title, *sous-aide-major*, has been recently created for the purpose, and it has been decided that the title of *aide-major* can now be conferred on an advanced undergraduate. The university certificate to be given by the examining board will be the equivalent for the usual final examinations of the two semesters. The authorities are planning to organize practical courses at points where dissecting amphitheaters are available, and the students can be released to study there at intervals, as the airmen go back for courses in aviation. It is realized that if the instruction of the medical students is not allowed to go on within the normal range of time, at the end of the war the medical schools would be swamped with the number of students returning to complete their courses. It has been recognized further that the practical experiences at the front with the sick and wounded have a high educational value. The French authorities for years have accepted the medical course given by the Jesuits in their college at Beyrouth as entitling to practice not only in Syria but in France as well. The only restriction made was that members of medical faculties in France should conduct the examinations, and professors were sent out there for that purpose until the war broke out. The new arrangements just concluded plan a similar system of sending a university examining board to conduct the examinations of the medical students at the front.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA

"War Session"

The eighth annual session of this congress, a "War Session," convened in Chicago, October 22. As is customary, practically all of each day was devoted to special clinics in Chicago hospitals.

The first evening session was held in Orchestra Hall on October 22. John Philip Sousa, conducting the Great Lakes Band, entertained the audience before the arrival of the speakers of the evening. His patriotic marches prepared his auditors for the stirring addresses which followed.

The meeting was called to order by the retiring president, Dr. Fred B. Lund, Boston, who introduced Dr. A. J. Ochsner, chairman of the Committee on Arrangements. Dr. Ochsner welcomed "the distinguished collection of surgeons, especially of military surgeons," stating that they are the most useful members of the medical profession at this critical time. The work of the Committee on the Standardization of Hospitals, which had just closed its meeting, he felt sure would be an inspiration to every man to work toward the standardization of hospitals in his community. The great purpose of the meeting was to become thoroughly familiar with the wonderful work that the Surgeons-General of the Army and Navy and the Public Health Service were doing. "This body of men can help because it is composed of men who are clean in their work, in their mind and in their morals, and they can shorten the war and lessen by hundreds of thousands those who will be lost during the war."

Address of Dr. Lund

Dr. Frederick B. Lund said that there were about 14,000 medical men already enlisted and ready for service and that they needed about 8,000 more, but that medical conscription would not be necessary. He spoke of the wonderful service that had already been rendered by the men in charge of the units that were in France, and of the other men who had volunteered their services and attached themselves to the British Expeditionary Forces two or three years ago. He traced step by step the growth of America's participation in the war. "To the older men among us," he said, "the war has brought the priceless opportunity of doing something unselfish before we die. To the younger man the Army and Navy give abundant opportunity to be of service and to show his skill if he has any." He closed his address with a recitation in the form of a poem, indicting Germany for her crimes against civilization, arousing his audience to a thunderous outburst of patriotic applause.

The President, Dr. John T. Clark

Dr. John T. Clark, Philadelphia, was inducted into office as the new president. "It is a pleasure," he said, "to sit as an auditor in this assemblage of military speakers who are devoting their time and attention to military affairs. They stand in the ranks who deal with salvage rather than destruction." He spoke of the wonderful progress that had been made in the matter of life saving devices that are already in use and of the many others which were promised which would revolutionize medicine and surgery. He was convinced that medicine would come out of this war far richer than when it entered it.

Address of Secretary Daniels

Secretary Daniels of the Navy said that it was to the physicians that the nation turned in time of war with supreme confidence in the belief that by preventive measures they could save the lives of the youths who are willing to rally to the standard, and he wished to express the thanks of America to the men who were making the great sacrifice of devoting their time and their skill to this purpose. He urged that the physicians use their great influence in stamping out the most destroying evil that touches American youth. The hour has struck when the prudery which has made us shut our eyes to this evil is at an end. We cannot win this war unless our soldiers and sailors have steady nerves and clear heads. Men do not have these unless they live straight lives. To put 10,000,000 men under arms and let a portion of them be diseased and make no check on the immoral surroundings that we place them in would be unjust to the nation and unfair to the men. For the first time in the history of the world our country has started on a new line. We have recognized the evil and no longer whisper about it in dark corners. The peril of today is not merely the German guns. In the English army 78,000 men are out of battle because of venereal disease. Congress has passed a law and put it in the hands of our officials to carry forward measures more drastic than were ever dreamed of before. During the last year because of these diseases 141,000 days were lost in the service of the Navy. One person out of every 112 in the Navy had to be treated and almost as many in the Army. We should quit trying to use the poultice when we need the surgeon's knife.

A Message from President Woodrow Wilson

During the evening the following telegram was received from President Woodrow Wilson and read by Dr. C. P. Davis: "To the Clinical Congress of Surgeons of North America: My warmest greetings and best wishes. It cheers us all to see thoughtful, patriotic work done in such good spirit. Woodrow Wilson."

Owing to illness Dr. Franklin Head Martin was unable to be present to introduce the distinguished representatives of the Army and Navy and the visitors from abroad, so Major Edward Martin was requested to take his place.

Address of Surgeon-General Gorgas

Surgeon-General Gorgas said that he had looked forward with dread to the necessary enlargement of his corps on account of the war and had expected to have considerable trouble in the management of so many well informed medical men, but he was happy to say that everything had gone smoothly and there had been no trouble. He thought the fact that he had scrambled along for six months in complete unison with his staff, which contained many eminent men, should have been mentioned in the eulogies that had been showered on him by the other speakers. When he consulted his records he found that not one had been court martialed or had spent a day in the guardhouse. The nation is engaged in the most important war of all history and we must acknowledge that it had responded most nobly in all its branches and not swerved away. No part has been called on to respond so promptly as the medical profession, and he thought it was fair to point out that they had measured up to all that could be expected. He closed by saying that no civilian agency had been of such great service to the government as organized medicine, and he wished to thank the congress of surgeons as all other societies for so full heartedly rendering this aid.

Address of Admiral Braisted

Admiral Braisted, surgeon-general of the Navy, spoke principally of the work of the National Board of Medical Examiners, which had been carrying on its work for two years and reporting from time to time. Its third examination had just been completed. The quality of the examination has been recognized everywhere. It has recently been announced that the Mayo Foundation would receive licentiates without further requirements. Many of the states have arranged to accept the certificate on registration. It had been deemed advisable to go on with the examinations during the period of the war and conduct them even more frequently, going to the larger cities and bringing them before the interns of the hospitals. In the examination just completed there were twenty-nine candidates. The next examination is in January. "It is the privilege of few men to do many great things and the National Board of Medical Examiners," said Dr. Braisted, "is one of the great things of the world."

Address of Surgeon-General Blue

Surg.-Gen. Rupert Blue of the Public Health Service said that this is the time for the estimation of values, and that everything that leads to efficiency brings us nearer victory. He was thankful to announce that the health of the United States was in better condition today than ever before. There had been an awakening of the consciousness of the American people regarding the prevention of disease, and the water and food supplies, the inspection of schools and the control of communicable diseases had all been placed on a good basis. Research has tracked infection to its lair and provided new methods for its control. With the knowledge that we must fight came the realization that these sanitary measures must be followed, and out of this war will come a better, stronger and more enduring national health.

Colonel Goodwin of the British Army

Col. T. H. Goodwin, R. A. M. C., said that Great Britain and America were in this great fight side by side with a common object, identical ideals and with the certain expectation of a mutually attained victory in the future—although probably not in the near future. When he came here five or six months ago Great Britain was in straits owing to the scarcity of medical men necessary, and they owed an unending debt of gratitude to America for the way in which she had responded. Since that time 900 medical officers and nearly 500 nurses have gone across to help on the western front, and their work would be helpful beyond description.

Colonel Dercle of the French Army

Col. C. Dercle of the French Medical Corps received a most hearty welcome. "The manifestations of sympathy moved him more," he said, "because he realized they were meant less for him than for France herself." He spoke of the battle of the Marne where the French army under the command of its chief, Major Joffre, covered itself with glory. "The French," he said, "intimated to Germany to stop—and they have stopped." He could not describe the treasures of devotion he witnessed. The deaths of the men had never been a cause of discouragement on the part of those who followed. On the contrary, there have always been many willing to occupy the vacant places. He highly approved of everything he had seen in the training camps he had visited, and was sure that every physician and surgeon was able to do his war work when strikes the hour. "This was due particularly," he said, "to the personal enthusiasm and activity of Surgeon-General Gorgas, who is giving such wonderful encouragement to every one who works in his service."

Lieut. John Philip Sousa, in a brief speech, said that it seemed to him the meeting was for the purpose of glorifying the medical profession. He then conducted the band in a series of numerously encored selections.

Address of Sir Berkeley Moynihan

"At midnight on Aug. 4, 1914, England—to her lasting honor—declared war against Germany, and at 8 a. m., Aug. 5, 1914, I became for the tenth successive generation a soldier of my sovereign," began Sir Berkeley Moynihan, and he was greeted with a furore of applause. From that time until he stepped aboard the boat at Liverpool he had practiced military surgery, thought of military problems and had lived with military people. There were about 30,000 medical men in England and one-third of them are wearing the king's uniform, and have seen active service or foreign service. In his center in Leeds they had a civilian hospital of 480 beds with a staff of four surgeons and four assistant surgeons. When the territorial system of hospitals was established throughout the country, Leeds was chosen as one of the centers, and they were asked to supply a military hospital of

520 beds. They agreed, and the men attached to the hospital staff became by that act officers in the territorial branch of the army. Of the eight surgeons there are three left at home, himself included—who is often in France, often in London and occasionally in Leeds. With that disabled staff, with the help of the practitioners in the neighborhood, they are running, with an efficiency he would not hesitate to display to the military surgeons of any land, a military hospital of 6,300 beds. The men of the Royal Army Medical Corps are both soldiers and doctors; as soldiers they go into any part of the line from the front trench to the base according to the needs at the moment. Since the war began up to the 25th of August, 1917, they had suffered 1,800 casualties. That number of their men had either been killed or wounded, or gassed or disabled from further service. The highest distinction which any Englishman can gain in the opinion of every Englishman is the Victoria Cross, and they had gained more than their share of that coveted distinction. Two members of the profession have won both the cross and the clasp, indicating that they have won the decoration twice. He paid high tribute to Surgeon-General Gorgas and Major Mayo for their work in connection with the Medical Reserve Corps and in preventive medicine. Ninety-eight per cent. of English soldiers have been voluntarily inoculated against typhoid with the result that they have had only 292 deaths from that disease and only 6,022 cases altogether, whereas in the South African War they had 57,684 cases with over 8,000 deaths, although this infinitely larger army lived under much more difficult circumstances. In many other directions they have helped to stamp out or reduce the prevalence of disease. He begged us never to forget that Germany is a great and formidable nation with an implacable hatred of them and of us, and said we might be sure that in this war with her reserves which come up fresh at the rate of a million and a quarter a year she will use against us every dirty device which she can think of. He believed that America would find as England had found that for her the war would begin when every man of military age in the whole country has offered his services and is prepared to surrender his life to his country.

Address of Major Crile

Major George W. Crile said that during his service in France he had heard no one express the opinion that the enemy was wavering or starving, that he was short of munitions or no longer fights a hard fight, or that the imperial power was crumbling. He had talked with many German prisoners and they were strong and well and well nourished. On the other hand, he had heard from British soldiers that when the Britain and the Teuton meet face to face the Teuton throws up his hands and surrenders, which shows that the Teuton has at least good judgment. He had come to know the British but had known the French less well; he had seen the Briton as a hero and had seen the same on the part of the French, and while he could conceive that the British and French might not win the war he knew that their bodies would never be taken away from the line. They might be buried there but they would never retreat. Everyone in France thinks that the war will be long. The opinion that the enemy is weakening, or is nearing a collapse, and that the war is almost over he had heard only since he arrived in New York. This shows a new danger—how extensive has been the peace offensive waged against the United States.

There are now six American hospitals in France serving with the British Expeditionary Forces. These units have taken over hospitals of from 1,600 to 2,000 beds; there are also several hundred men in the field service, ambulance corps and other capacities. These men know no fear and frequently shake hands with fate, but they stick to their tasks bravely and are men of whom we should all be proud. The British Medical Service has kept their army more free from colds and infection than the civilian population of Chicago. Their medical organization is so perfect that their transport never failed. The death rate from infection and wounds in the French and British lines has been reduced to an incredible minimum, and a vast army of soldiers has been returned to active service, wearing on their sleeves the insignia of having been wounded. The demands of surgery at the present moment are felt by every one; a new set of problems has arisen, and if they are to be solved we must abandon our more personal interests for the time being. Many surgeons must leave their practice and do for the wounded man what had been done for the diseased in every line of surgery. The same intense devotion toward the problems of the wounded soldiers would do for the soldier what had been done for the civilian who remains at home. It is a serious mistake to suppose that military surgery is surgery for the unskilled. It demands a greater versatility and the ability to stand in twelve-hour shifts and to meet every problem that arises in the sequence in which it comes. If a man is interested in any particular thing and says so, the stream is turned on him until he surrenders. More progress has been made in surgery of the chest and abdomen and in the treatment of wounds, of infection and hemorrhage and in the treatment of exhaustion in the past three years of the war than in any time before. This is not a war of men but of ideas, and when thousands are to be saved, what greater gain can be had than to discover means of prevention that may be applied?

Afternoon Session, October 23

At an afternoon session, held at the Congress Hotel, moving pictures of war methods were shown, and special addresses were given. The first address was that of Col. Thomas H. Goodwin of the British Army, in which he described the effect of the war on the English medical profession. Following this address was that given by Major Rist, characterized as the French Osler, on a similar subject, but applying to the French medical profession.

Address of Dr. Frank Billings

An address was then given by Dr. Frank Billings, head of the American Red Cross Commission to Russia, who has just returned from abroad. Dr. Billings brought a message both unencouraging and encouraging in its various aspects. He believes that politically and economically Russia is far from the disorganization pictured by so many writers. With the food now on hand, he is convinced that Russia could easily exist for another year. Numerous supplies of practically every kind are available. In one storehouse in Petrograd there are stored over 6,000,000 suits of underwear for the use of soldiers. However, there is some disorganization, and this shows its effect chiefly in intercommunication; the transportation of food, supplies and munitions is accomplished only with the greatest difficulty. There have been seven cabinets in Russia since the revolution, and these cabinets are created without definite authority, each cabinet having its backing within itself. Dr. Billings was convinced that in her strong young men, particularly Kerensky, who he believes is an honest man and a man who stands for country first, Russia will eventually find herself, and will become a democracy firmly founded possibly through a limited monarchy. The hospitals and the medical department of the army are admirably conducted; in fact, Dr. Billings believes it is equal to that of any in the world. There are certain surgical and medical supplies which Russia requires, but only a few. Before the war, Russia made no synthetic chemicals, but at the time he left, factories in Petrograd were turning out tremendous quantities of needed material. "Russia is making chemicals and drugs as efficiently as we are," said Dr. Billings, "though not to such an extent." He is convinced that after the war not a package of any kind marked "Made in Germany" for consumption in Russia will be received in Russia. Following the address of Dr. Billings, Capt. J. Gilmour of the British Army described the progress of a wounded man from the front to "Blighty."

Report of further meetings will appear next week.

NEWS OF THE TRAINING CAMPS

Fort Benjamin Harrison

ADDITIONS TO OUR WARMTH

At last the long-expected stoves for the barracks have been installed, and with their advent the spirits of the camp have ascended in proportion. Now the evening grind over the Army Regulations and Manual of the Medical Department will be a pleasure, since the tremor (*frigidorum*) will disappear.

Glad tidings of woolen clothing to be sold to the medicos by the quartermaster have reached a more authentic stage than L. O. (Latrine Order) No. 23. It is now understood that an order which provided that no more clothing be furnished by the government to any one until the entire National Army had been completely equipped has been rescinded. Of course, officers are not issued uniforms of any kind by the government, but they have the privilege of purchasing such supplies from the various quartermasters at cost price. The officers of the Medical Reserve Corps in active service are willing to take advantage of the low prices of the quartermaster's department in purchasing supplies, as the difference between these and the constantly ascending prices of the retail merchants is tremendous. It is to be hoped that this purchase privilege will be lasting.

EQUIPMENT OF MEDICAL OFFICERS

More doctors are coming into the training camps constantly, and the variegated sort of equipment that they bring justifies some advice as to the necessities. True, umbrellas no longer appear in their equipment, but they still bring swords and rocking chairs, and, no doubt, if the military equipment establishments sold walking spurs and guard lines, some enthusiastic doctor would be induced to buy. A doctor ordered on active duty should purchase only the absolute necessities. The quarters that will be assigned are limited, and the military authorities will allow only a certain amount in weight and shape for transportation in campaign. It is folly, therefore, to load up with extra baggage, as the excess is destined to immediate shipment home.

The following list will cover all that is necessary for the winter season:

Uniforms.—One heavy weight serge uniform, with cap, for dress. A white linen collar and white cuffs must be worn with this uniform. Many of us find a white linen military stock more convenient than a stiff linen collar.

One olive drab service blouse, with two pairs of trousers, which it is usually possible to purchase at contract price from the government, though the latter privilege is by no means certain. The decorations on the collar of the blouse should be the letters U. S. R. and a caduceus on each side, the letters in front, the caduceus a short distance behind; on each shoulder, the bars indicating the rank, and around each sleeve, the proper distance above the wrist, a circle of brown braid.

No leather belt is worn outside of the blouse. A sword is unnecessary. The belt to support the trousers should be olive drab webbing.

Shirts.—Two olive drab, flannel. More may be obtained from the quartermaster at a very reasonable price. The collar ornaments for the shirt, when the blouse is not worn, are a caduceus on the left side, U. S. R. on the right side, near the front, with the rank designation a short distance behind it. It is better to buy the smaller size of these ornaments.

Puttes.—Leather, one pair, costing about $7. These must be purchased to fit.

Shoes.—One pair of Munson last, tan, a half size longer and one size wider than the shoe ordinarily worn. More shoes may be purchased from the quartermaster's stores on arriving at camp.

Overcoat.—A heavy regulation officer's coat. This also may be purchased from the quartermaster, but alteration will be necessary, and the quartermasters do not always have them in stock. It is better, therefore, to purchase it at home.

A sheepskin-lined, moleskin, short coat, with a fur collar, is very useful, though not necessary. This is called a "trench" coat.

A tan-colored rubber coat is essential, and a pair of light-weight rubber boots useful. These boots should be large enough to allow the wearing of a pair of felt slippers. The latter can also be used in the barracks.

Underwear.—Woolen; two suits.

Socks.—Two pairs, light weight woolen; two pairs, heavy weight woolen.

Gloves.—Woolen, olive drab.

All of these can be procured from the quartermaster on arriving at camp, provided, of course, his stock has not been depleted.

Hat.—A campaign hat, with an officer's hat cord, is necessary. This is to be worn on all occasions, except for dress.

Sweater.—A sweater is not provided for in regulations, but is allowed in camp for fatigue. This must be of the regulation olive drab color. The Red Cross sleeveless sweaters are a great comfort, but must be worn inside the shirts. The Red Cross wristlets are allowed and advisable, if of olive drab.

Pajamas.—Woolen pajamas are a necessity. Nightgowns are ridiculous.

Trunk.—One locker trunk, of regulation size. At present they cannot be procured from the quartermaster.

Cot.—A strong Gold Medal cot, higher than is usually sold —in fact, high enough to allow of placing the trunk underneath.

Bedding-Roll.—This must be purchased, but can be procured in camp for about $11.25.

Blankets.—Bring them with you. Thick, warm, woolen blankets, of dark color, preferably three. Two comforters—one woolen and one cotton, of strong material, the cotton to sleep on, the woolen to wrap up in.

Sheets.—Only the fastidious need sheets, and army life soon cures that disease. The sheet is about as useful at this time of year in barracks as a bedspread would be.

Pillow.—A small, thick, hard pillow, covered with dark material. A pillow slip is unnecessary.

Towels.—Turkish towels answer the purpose best. These can be purchased in camp, at a reasonable price, but it is well to bring several along.

The Red Cross comfort kit and toilet roll will be needed. A safety razor is best, as often one shaves without a mirror and with cold water.

Do not forget the tooth-brush, and to use it. If this has been neglected heretofore, practice its use before coming to camp.

In this connection, it will be well to add that it may serve a good turn to practice daily bathing, as it will be necessary in barracks. Also, it is *à propos* to remark that it would be well to bring your table and home manners with you, as you are expected to be house-broken while living with other men.

A small, light typewriter is a great convenience.

It will be possible to procure everything else needed on arriving at camp, except some ready money to carry you over until you cash your first pay check. I might add that pay vouchers are sent in on the 20th of the month, and not after, and pay therefor is received near the first, by check of large denomination, which it is not always easy to cash.

Instruction in camp is undergoing many changes leading up to actual service conditions, as, for instance, intensive equitation, gas-mask instruction, actual duty in the elaborately constructed trenches on the reservation, etc. Experiences in connection with these duties will be described in the succeeding numbers of The Journal.

NEWS OF THE CANTONMENTS

Twenty-Eighth Division, Camp Hancock, Augusta, Ga.

The strength of this command, officers and men at this time is 27,548 of which there are 149 sick in hospital and 286 sick in quarters. There are no cases of alcoholism and but 289 of venereal disease. Nearly all are cases of gonorrhea and only about twelve of these contracted since arriving here. Several cases of mumps and a case of scarlet fever constitute the infectious diseases.

The division is particularly free from serious diseases or surgical conditions, and the sanitary conditions are very good. The command is about immunized to typhoid and variola. Paratyphoid inoculations are nearing completion.

Thirty-First Division, Camp Wheeler, Macon, Ga.

Thirty-three medical officers recently arriving from the training camp at Fort Oglethorpe have almost filled the vacancies in this division. Others to come will complete the commissioned medical personnel in a very short time. The enlisted force is still over 400 short. The camp hospital, which has cared for all patients of the division, was closed on September 18. The medical officers' school was, of necessity, closed during the past week on account of the arrival of drafted men who came in by trainloads—from 1,000 to 4,000 a day. Pneumonia is the only serious disease in the camp. Twelve cases have occurred so far, with no deaths. Major Weil is making a careful study of all cases, in an endeavor to throw some light on the etiology, prevention and treatment of this, now the most fatal of all diseases in our camps. It is feared that the coming cold weather, with a shortage of heavy clothing, may cause an increase in the amount of pneumonia. The Public Health Service is doing good work in Macon and the country about the camp. Under the direction of Surgeon Williams, dairies, lunch rooms, ice cream factories and the like, are being put in good sanitary condition. The American Red Cross and the city of Macon have furnished the funds thus far.

The Commission of Training Camp Activities is beginning a campaign to clean up the city of Macon morally. The chief obstacle is a certain amount of clamor from those financially interested, who claim there is no vice in the city. The venereal wards at the hospital give these claims the lie.

A first aid station has been established in the city in order to care for soldiers who are injured or need medical attention while in the city. This is believed to be the first one of its kind established in the history of the Army.

On account of the breaking up of the Fifty-Sixth Depot Brigade, Major Livingston has been transferred to the One Hundred and Sixth Engineer Regiment.

ONE HUNDRED AND SIXTH SANITARY TRAIN, CAMP WHEELER, GA.

The camp hospital, maintained as a division hospital during the construction of the base hospital, was evacuated on the 16th instant. The transportation of 123 men unable to walk, and fifty-five ambulatory cases, was accomplished by Ambulance Companies Nos. 121 and 123, in two hours and forty minutes.

Major Lorin A. Greene and the Florida Field Hospital officers and men are to be commended for the efficient manner in which the camp hospital was conducted. Working under conditions naturally crude, and handicapped by many shortages, the handling of 888 sick soldiers was conducted.

One hundred and thirty-five men were drawn by the train from the incoming troops from Camp Gordon. It helps some, but we still need 400.

Major George A. O'Connell (Alabama) will command the third motor field hospital just authorized, and Capt. James A. Blackwell (Alabama) the third motor ambulance company.

The conduct of the train as a regiment seems to be working out well. Why the sanitary train is not authorized a train commander of equal grade with commanders of other trains is hard to understand.

Lieut. Edwin S. Byrd (Georgia) has returned to duty a full fledged benedict.

Major George F. Keenan (Massachusetts) represented the medical department of the division at the annual meeting of the Red Cross chapter at Macon, the past week. The needs of the hospital service were discussed, and cooperation urged.

The flooring and walling of the tents for the winter is nearing completion.

Lieut. Daniel Campbell (Florida) has returned from leave of absence as witness in an important murder trial in his home state.

BASE HOSPITAL NOTES

The hospital was opened for the reception of patients at 8 a. m. on Wednesday, October 17, just thirty-nine days from the time the first nail was driven.

The following buildings were then ready for occupancy: commander's and officers' quarters, administration, receiving ward, laboratory, patients and employees' mess hall and kitchen, medical wards 1, 3, 15 and 17, surgical wards 2, 4, 14 and 16, each numbered ward containing thirty-eight beds. As carpenters go out of one end of completed buildings beds for patients come in at the other end. This without interfering with the contracting force. One hundred and fifty stoves for heating have been authorized to be purchased locally and will be in place within a week. The operating pavilion will be heated by using surplus steam from sterilizing plant, and hot and distilled water for the laboratory will be obtained from the same source.

Patients began to arrive at 8:30 a. m., and by 4:30 p. m. 252 had been admitted. The arrival of new cases has kept pace with the utmost endeavor of the personnel but none have been turned away. Today, Saturday, we have ten wards open and 312 patients under treatment. Considering the shortness of the force and the other difficulties under which this work has been accomplished, the result is astonishing, but no more than should be expected of American soldiers. The mess officer deserves special mention for his efforts and results.

This unit has thus early demonstrated what can be done by intelligent, united effort, and every member has shown the proper *esprit de corps.*

Thirty-Fourth Division, Camp Cody, Deming, N. M.

Camp Cody, N. M., the Thirty-Fourth Division, is being formed of troops from the National Guard of Minnesota, the Dakotas, Nebraska and Iowa. Lieut.-Col. J. M. Coffin is division surgeon, and about a hundred medical officers of the division are already working under his direction.

The camp is situated just west of the city of Deming, occupying an area of 4 by 2½ miles, being part of an extensive "bolson" plain near the continental divide, at an elevation of about 4,400 feet, with isolated mountains around it in all directions at distances of from 6 to 50 miles. The Army sanatorium for tuberculosis at Fort Bayard is distant only 54 miles.

The health of the troops is excellent. The climatic and other local conditions are of the best, and the division surgeon has succeeded in preventing the introduction of disease from outside. Surgeons examine all incoming troops promptly on arrival, and isolate all patients with contagious disease. A board of five medical officers is examining all troops for incipient pulmonary tuberculosis. Capt. E. S. Bullock of Silver City, N. M., is president of this board. Similar boards make careful examinations along other lines. Capt. H. R. Carter, Jr., formerly of Johns Hopkins Medical School, is director of the board for cardiovascular examinations; Capt. L. C. Covington of Charleston, W. Va., of the board for ocular diseases and defects, and Lieut. H. Phillips of the Pennsylvania State Hospital for the Insane for mental disease and defects. Less than 0.5 per cent. of the troops have shown incipient pulmonary tuberculosis, 1 per cent. some form of conjunctivitis, and less than 1 per thousand serious mental incapacity.

VENEREAL DISEASE

Venereal diseases have resulted in admissions to the hospital at the rate of 2 per thousand. The municipal authorities in the city of Deming have cooperated loyally and zealously in combating these and other diseases at the source. The segregated district in the city has been abolished, and the reestablishment of houses of prostitution prevented.

Two cases of typhoid have developed among civilians. These infections have been traced in each case to a source outside the camp. No cases have developed among the soldiers, and vaccination against typhoid, paratyphoid and smallpox is being accomplished.

WATER SUPPLY

The water supply comes from wells from 70 to 100 feet deep. Previous examinations have shown the water to be pure, free from alkali and organic pollution, and careful examination of water from each of the four individual wells is now being conducted. An interesting character of the subsoil contributes to the safety of the water supply. The rainfall is very slight, and the water in the ground has come in from the mountains surrounding the plain. These water-bearing strata lie beneath a layer that is almost impervious. Water stands in unlined cisterns for months without apparent diminution, but there is evidence of an exceedingly slow capillary movement of subsoil water upward to replace that lost from the surface by evaporation. This water carries with it lime salts in solution which are slowly deposited a foot or more below the ground surface as the water evaporates, and a considerable layer of "caliche" has thus been formed. This is used for surfacing streets and earthen floors.

Although the soil is thus impervious, the contamination of the surface by excreta and garbage is prevented for other reasons that are obvious. Cesspools in Deming have been replaced by connection with the sewerage system, and where open closets are still used, the dry earth system and fly tight boxes are required. Garbage is sold under contract, and other refuse is burned in the company incinerators over which all waste or dirty water from kitchens or other sources is evaporated.

INSTRUCTION OF MEDICAL OFFICERS

Recently an order was issued from Washington requiring courses of instruction for medical officers with divisions. Such a course of instruction was instituted in Camp Cody, October 1, ten days in advance of the receipt of the order. It is designed to cover the work that will be required of medical officers in campaign, and includes sanitation in camp and on the march, the care of the person, foods, cooking and mess management, as well as the study of Army Regulations, Manual of the Medical Department, organization of the Army, relation of the Medical Department to the rest of the Army, and other administrative work which is essential in an effective organization, and in which the Medical Department necessarily plays a very large part. The course is objective and practical, and includes participation in regimental, brigade and divisional maneuvers.

In the more specifically medical part of the course, regular conferences are held in the wards of the base hospital, at which regimental surgeons and others discuss with the hospital staff cases which they have sent in, paying especial attention to those in which the diagnosis at the base hospital differs from that on admission.

Lectures by specialists present with the division, or sent for the purpose, deal with various departments of military medicine and surgery, diseases incident to life in the trenches, gas poisoning, and the special conditions that the Medical Department is likely to have to meet during the present war.

The physicians who have exchanged civilian life for the orderly round of military duties in the camp are finding the work heavy but full of professional and human interest. All are finding the well ordered life in the mountain air good for health and spirits, and are happy in the consciousness of giving increasingly efficient service to the United States.

Thirty-Ninth Division, Camp Beauregard, Alexandria, La.

Camp Beauregard, a National Guard camp, houses the Thirty-Ninth Infantry Division, composed of the National Guard units of Arkansas, Louisiana and Mississippi, and is under the command of Major-Gen. Harry B. Hodges. Only about 7,000 troops have arrived to date; but they are coming in rapidly, and a full division of 27,000 men will be here soon. The first medical officer to arrive was Major George F. Lull, commanding officer of the base hospital, who reported for duty, August 13. Lieut.-Col. William G. Schauffler, late surgeon-general of the New Jersey National Guard, who is division sanitary inspector, was the next arrival. Under his careful and efficient supervision the entire camp has been put in a most satisfactory sanitary condition. Next came Lieut.-Col. William Smart of the Medical Corps, who is division surgeon. Colonel Smart is a son of the late Surgeon-General Smart of the Army. At present time there are forty-five medical officers in camp. There are ten regimental infirmaries, one field hospital and the base hospital. The latter is located on a hill in the pine woods about 2 miles from the rest of the camp. The buildings are not yet quite complete, so the patients of the camp who are too sick to be treated in the regimental infirmaries or the field hospital are being taking care of in the Alexandria Sanatorium by members of the staff of the base hospital. However, the constructing quartermaster has given assurance that the base hospital will be sufficiently complete to receive patients during the present week. The personnel of the base hospital staff includes the commanding officer, Major George F. Lull, M. C., who brings to the position a wide experience acquired in Panama and on the Border, and the chiefs of the sections, as follows: medicine, Major J. B. Guthrie, professor of clinical medicine in Tulane University; surgery, Major John T. Burrus, High Point, N. C.; orthopedics, Capt. E. D. Fenner, professor of orthopedics in Tulane University; surgery of the head, Capt. W. C. Heisey, McKeesport, Pa.; neurology, Capt. John T. Sample, Saginaw, Mich., formerly medical house officer of Johns Hopkins Hospital; section of venereal diseases, Dr. Loyd Thompson, Hot Springs, Ark., editor of the *American Journal of Syphilis;* and laboratory, Dr. Charles Burhans, Cleveland.

MEASLES

An epidemic of measles broke out in the First Louisiana Infantry the latter part of August, and to date there have been about 100 cases. There are now twenty-seven cases, most of them comparatively mild. As these cases constitute the majority of the cases of illness in the camp, the clinical work of the staff of the base hospital has been comparatively light. The time is taken up with drills, classes on the ever present paper work, the bugbear of the medical reserve officer, French lessons and quizzes. The *esprit de corps* is excellent, and when the division goes to France, the base hospital should prove a most efficient unit.

TUBERCULOSIS SURVEY

A special detail of medical reserve officers and contract surgeons, headed by Major W. G. Owen, has been sent to the camp to make a survey of the entire command for tuberculosis. About 300 men are being examined daily, and so far three positive cases have been discovered. All men that show suspicious signs are placed in bed under observation for ten days with daily sputum examinations.

Seventy-Sixth Division, Camp Devens, Ayer, Mass.

Fire in the Army base hospital at Camp Devens, Ayer, Mass., believed of incendiary origin, periled the lives of 300 patients, but by prompt action, all patients were removed without casualty. The fire was extinguished before the main building was reached. The process of reconstruction is expected to go forward rapidly and the patients will be handled temporarily in other buildings.

Eighty-First Division, Camp Jackson, Columbia, S. C.

The cantonment at Camp Jackson is on a plateau northeast of Columbia. It occupies about 3,000 acres of land which only three months ago was largely under cultivation. Even now large fields of cotton can be seen about it. From the entrance of the camp to the base hospital a distance of over 2 miles must be traversed. The base hospital comprises eighty buildings, and the work is being rushed to completion. The hospital quarters for officers will be ready by the end of the week.

The camp is situated on a ridge, on the continuation of which Camden, the southern winter resort, is built. From this site the distant hills can be seen reaching the sky.

The field hospital contains no sick whose diseases are due to camp life.

The barracks have electric light and heat, latrines which are heated by stoves, and shower baths with hot and cold water. The drainage and sanitary arrangements are complete; these have been under the direction of Major Thomas J. Leary.

The base hospital is built on the highest level of the cantonment: "as the mountains are round about Jerusalem," so are the hills about Camp Jackson. The buildings can accommodate 1,500 patients, and are connected by covered porches; all are grouped about a center, access to which can be gained, thus providing safety against fire. Lieut.-Col. Kent Nelson is the division surgeon, and Major James F. Johnston, assistant and now sanitary officer. The commanding officer of the base hospital is Major Thomas J. Leary, a Regular Army man with experience in Panama, and in the Philippines under General Pershing. The chiefs of the staff of the base hospital are Major W. W. Herrick, internist; Major Richard H. Hutchings, psychiatrist; Major James Stone, surgeon; Capt. Henry Tucker, in charge of venereal diseases; Capt. John W. MacConnell, otolaryngologist; Capt. Frederick W. Baeslock, chief of the pathologic laboratory; Capt. Harrison A. Greaves, roentgenologist, and Capt. Burton Chance, ophthalmologist.

Major James F. Johnston was transferred, October 16, to the post of division sanitary inspector so ably conducted by Major Leary, who was appointed commander of the base hospital. The staff was organized as a central board, under Colonel Nelson, to decide on the acceptability of the rejected men found physically or mentally deficient by the regimental surgeons, who hold examinations of the drafted men daily. Assisting in this examination are Lieutenants Hart, Braun, Long, Gerhardt, Gibbs, Robbins, Woodhouse, Heard, Lattin and Pendleton. So far over 1,400 men have been rejected.

The city has opened its heart to the officers and men with true Southern hospitality, and already they are welcome to enter many a charming home. Entertainments have been prepared for all. The churches keep open their buildings Saturday nights, and a number of eat-shops have been established for the comfort of the soldiers visiting the town. Car lines have been extended to the camp, and it is hoped that express steam trains will run later. Every one is happy, and I have yet to see a man or officer with a "grouch." There are all kinds of sports, including baseball and football, but no "highballs," for South Carolina is "bone dry" to the advantage of the entire cantonment.

PERSONAL

Capt. Wayne Babcock, regimental surgeon, has been transferred to the base hospital at Fort McPherson.

Lieut. Stuart Hart, who had conducted the cardiovascular studies, was recalled to New York.

Capt. Burton Chance received his commission in September.

Lieutenant Birnie recently arrived from Fort Sill. He came to conduct the gas defense drills. A gas house is being constructed in which the gases will be demonstrated.

Saturday, October 6, many members of the base hospital were guests at a barbecue held at White Pond, an attractive sheet of water about 20 miles from Columbia. To most this was a unique feast. Besides the delicious food, the occasion gave the medical officers an opporunity to meet socially Generals Barth and McIver and many officers of the line.

Shortly after his arrival at the cantonment, Captain Tucker instituted an investigation of prostitution in Columbia in which he was ably assisted by several public spirited citizens who had become concerned over the ravages of the social evils. The name of every prostitute and many suspects and the location of all houses in which the trade is carried on is known. The Army of the United States, with cooperation of the civil authorities, can eradicate social diseases. Columbia is "bone dry," and if any argument for prohibition is needed, behold the National Army!

Eighty-Fifth Division, Camp Custer, Battle Creek, Mich.

Major John Ridlon has been in camp since October 16, and has given especially interesting and practical talks to the medical officers of this camp on conditions of orthopedic surgery. There was a large attendance at these meetings, as orders from the division surgeon requested every medical officer to attend. After hearing these lectures no one regretted having complied with the order, as the major presented the subject in such a way as to be of much benefit. He also delivered a course of practical talks on the care of the feet to a large number of line officers.

The medical society of Battle Creek (Calhoun County Medical Society) has passed resolutions making two regular monthly meetings instead of one. This was done for the purpose of bringing the medical corps of the division in closer touch with the profession of Battle Creek and things of medical interest other than from a military point of view. At the last meeting, October 2, Dr. Hugh T. Patrick of Chicago talked on "Diagnosis of the Functional from the Organic Diseases of the Nervous System." Major Lewis Wine Bremerman, Camp Custer, Mich., talked on "Diagnostic Points in Genito-Urinary." The meeting was well attended, both by regular members and by the medical corps of the Eighty-Fifth Division.

VENEREAL DISEASE

The subject of venereal diseases is paramount at this time. Calhoun County Medical Society passed special resolutions at the October 2 meeting, having in mind the protection of the soldier against these diseases.

Camp regulations are such that they require the isolation of all venereal diseases among soldiers, no passes being permitted to these men until they are free from infection and thus prevented from spreading the disease. Whenever it is possible to obtain from the soldiers who are infected the name of the women from whom they contracted the disease, it is forwarded to the health officer in Battle Creek. If this plan works out, there is no reason why venereal diseases in this particular division should not be reduced to a minimum, for there is no question that if the resolutions are carried out to the letter, the infected professional prostitute will find difficulty in transmitting her infection to others.

Eighty-Sixth Division, Camp Grant, Rockford, Ill.

The medical condition of Camp Grant continues to be satisfactory. Many of the cases in the base hospital are those found by the regimental surgeons in making their routine examinations of all the recruits, and are waiting for their discharge papers to come through. In justice to the local boards, it should be said that most of these cases are of such a nature that they could not be recognized at a single examination, but were brought to light by more extended careful observation.

In examining large numbers of recruits, it is necessary to use every device possible to save time that does not diminish the efficiency of the examination. It has been found most practical to have the examination of each man divided among several medical officers than to have each recruit completely examined by a single officer. The following method will run through about eighty an hour: Thirty recruits are admitted into the room at a time and are stripped. One physician weighs and measures the recruit, and notes the muscular development; another listens to the heart and lungs; the next examines the genitalia and for hernia, hemorrhoids and varicose veins; the fourth tests the muscles and joints; the fifth counts the absent teeth and looks at the nose and throat, and two men examine the eyes and ears. In addition it is often advantageous to vaccinate the recruits for smallpox and typhoid fever. In this case one man is assigned to each form of vaccination. With this division of labor, the line of recruits will pass through smoothly. All questionable recruits fall out of line and are passed on by the commanding officer and, if necessary, are told to report at a less busy time for a more extended examination.

Each medical officer has an enlisted man who records his findings on the proper form and passes it on to the next. In this way, when the recruit has finished his examination, there is a complete record of the findings ready for the signature of the commanding officer. The finger prints are taken by a noncommissioned officer.

The vaccinating officers usually have two helpers. For smallpox, the first washes the arm with soap and water, the second applies ether or alcohol. For typhoid, the first paints the arm with the tincture of iodin, and the second runs the sterilizer.

There have been few changes in the personnel in the last two weeks. The various departments are perfecting their organization and are running smoothly. The laboratory has started a menagerie which at present consists of several white mice. The personnel are rapidly becoming sophisticated, and have stopped looking for 5 yards of skirmish line.

Eighty-Seventh Division, Camp Pike, Little Rock, Ark.

The arrival of forty-five medical officers from Fort Oglethorpe, October 19, marked the practical completion of the commissioned medical personnel of the Eighty-Seventh Division. These were assigned to the three field hospitals yet without officers and to four ambulance companies not having their full commissioned quotas. The remaining officers were divided among the various regimental infirmaries and the infirmaries of the depot brigade.

With the completion of the commissioned personnel, it is expected that the work of training will go rapidly forward, the enlisted personnel being drawn as rapidly as possible from the drafted army. A full and complete course of instruction will be carried out, being very similar in character to that given at the various medical training camps. While a large percentage of the medical officers in this division were former students at training camps, there is a certain percentage who were there only a short time, and a few who have had no special instruction along army medical lines. The plan as outlined provides for the training and instruction of the untrained by those who have had the advantage of the full course of instruction in training camps. This plan will not only give plenty of "work for idle hands to do," but also will add greatly to the interest of the "army medical game," and relieve to some extent the monotony that is sure to creep into camp life.

The work of examining the colored troops continues, and as the War Department is very anxious to expedite this work, the examining medical officers are not allowed to sleep on post. As soon as examined and given the triple typhoid vaccination and equipped, the colored troops are removed to other cantonments. An officer who traveled on one of the troop trains with these men makes the statement that wherever the troops were "paraded" for the purpose of exercise the populace unvariably commented on their soldierly appearance and the aptitude with which they acquired the drills.

The general health of the command remains good, measles being the prevailing ailment, and there being only about thirty or forty cases of that in a command of over 20,000. The number of cases of malaria is very small.

Weather conditions are better of late. The heat has been great during part of the day, and the nights are cold. The dust has also been a great hindrance to effective work whenever the wind blew. A good rain has laid the dust and steadied the atmosphere to a more nearly equable temperature during the past twenty-four hours.

Capt. G. H. Campbell, alienist at the base hospital, has become a major. Otherwise everything is "quiet along the Potomac" as regards promotions.

Eighty-Eighth Division, Camp Dodge, Des Moines, Iowa

The medical department at Camp Dodge is now a well organized institution. We have the distinction of being the first troops to arrive at the new National Army cantonment, and have played a considerable part in the work of the camp thus far.

August 25, thirty-three medical officers and 200 of the enlisted personnel of the Medical Department were sent from Fort Riley, Kan., to Camp Dodge. For most of us it was our first experience traveling with troops. When we arrived at Camp Dodge, very few of the barracks were completed, and none of the sewerage, water or lighting accommodations were installed. However, Major Fronk of the sanitary department had arrived before us and had made adequate measures for our care, although they were of a rather rough nature.

During the first two weeks spent here, Lieut.-Col. Shook, the division surgeon, organized the various regimental detachments and had them ready for the physical examination of the first men of the draft on their arrival, September 10. The rapidity and thoroughness with which these men were examined spoke well for this organized work. Since then the second increment of the draft army has arrived and all have been examined, and the regimental surgeons are now having a little respite while awaiting the third increment of men, which will arrive about October 25.

About one week ago, forty-eight medical officers arrived from Fort Riley after the completion of their course of instruction at that place. These officers have been assigned to the several regiments, field hospital companies and ambulance companies, filling these several organizations, so that each now has their required number of officers.

BASE HOSPITAL

The base hospital was organized under the directorship of Major Craft, a Regular Army officer. As the new base hospital buildings were not completed, it was installed temporarily in four barracks provided for the use of the ambulance companies later on.

The new buildings for the base hospital are about 80 per cent. complete. November 1 is the date fixed now for the completion of this hospital. Meanwhile the base hospital is doing a rushing business in the temporary barracks in which they are now located.

"Colds," influenza and pneumonia are the predominating illnesses. Every venereal patient is confined to the hospital until the discharge ceases or the contagious stage is past. There have been three cases of delirium tremens due to the sudden cutting off of the liquor. Without doubt, the total abstinence of the soldiers from liquor will be the greatest step in disease prevention which the War Department has taken, and the draft men who have been excessive users, while suffering most at first, will be greatly benefited by their army life.

A number of surgical operations have already been performed successfully in the improvised operating room. This includes two cases of acute appendicitis.

The examination of the recruits has revealed 100 cases of diseased teeth and tonsils. The dental and nose and throat services of the base hospital are busy removing these foci of infection. This is a form of preventive medicine and surgery that has been neglected in other wars. While the sanitary department is busy removing the causes for disease in the physical surroundings of the men, our medical and surgical staffs are busy removing the causes for disease in the men *themselves. It is impossible to estimate the value of these* measures to the efficiency of our new Army.

There have been two deaths thus far, one acute mania and one from delirium tremens.

AMBULANCE COMPANIES

Four weeks ago the Red Cross ambulance company of Denver, under the command of Captain Hopkins, arrived. This company is composed chiefly of college men from the University of Denver and the University of Colorado.

Another Red Cross ambulance company arrived three weeks ago from Flint, Mich. It is composed of men from the automobile industries of Michigan, and was equipped by these concerns. Captain Winchester is in command.

NEWS NOTES

Major Black, M. R. C., Milwaukee, Wis., spent three days at the base hospital last week in his general inspection. He reported that the hospital and the type of work being done was excellent.

Major H. E. Mock has been relieved from duty at Camp Dodge, and has been called to the Surgeon-General's Office, Washington, D. C.

A tuberculosis board, headed by Captain Peck, arrived at Camp Dodge a few days ago, and began work immediately.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Oct. 12, 1917

1. TOTAL STRENGTH OF TROOPS	1,000,680
Admission rate per 1,000 ....weekly	19.1
Non-effective rate ....weekly	19.1
2. NATIONAL GUARD—STRENGTH	303,967
Admission rate all camps ....weekly	20.5
Non-effective rate all camps ....weekly	21.8
Camps showing admission rate higher than average:	
29th Division, Camp McClellan, Anniston, Ala.	21.3
31st Division, Camp Wheeler, Macon, Ga.	28.6
33d Division, Camp Logan, Houston, Tex.	24.1
34th Division, Camp Cody, Deming, New Mex.	21.9
35th Division, Camp Doniphan, Fort Sill, Okla.	26.4
36th Division, Camp Bowie, Fort Worth, Tex.	28.7
38th Division, Camp Shelby, Hattiesburg, Miss.	30.9
39th Division, Camp Beauregard, Alexandria, La.	28.6
40th Division, Camp Kearney, Linda Vista, Calif.	34.5
42d Division, Camp A. L. Mills, Garden City, L. I.	23.4
Camps showing non-effective rate higher than average:	
30th Division, Camp Sevier, Greenville, S. C.	24.5
31st Division, Camp Wheeler, Macon, Ga.	29.2
32d Division, Camp MacArthur, Waco, Tex.	32.4
33d Division, Camp Logan, Houston, Tex.	26.1
36th Division, Camp Bowie, Fort Worth, Tex.	29.8
38th Division, Camp Shelby, Hattiesburg, Miss.	36
39th Division, Camp Beauregard, Alexandria, La.	23.7
42d Division, Camp A. L. Mills, Garden City, L. I.	24.9
3. NATIONAL ARMY—STRENGTH	428,855
Admision rate all camps ....weekly	19.1
Non-effective rate all camps ....weekly	14.6
Camps showing admission rate higher than average:	
79th Division, Camp Meade, Annapolis Junction, Md.	19.7
82d Division, Camp Gordon, Atlanta, Ga.	22.2
85th Division, Camp Custer, Battle Creek, Mich.	20.2
87th Division, Camp Pike, Little Rock, Ark.	23.7
88th Division, Camp Dodge, Des Moines, Iowa	22.1
89th Division, Camp Funston, Fort Riley, Kan.	29.7
90th Division, Camp Travis, Fort Sam Houston, Tex.	31.6
91st Division, Camp Lewis, American Lake, Wash.	30.4
Camps showing non-effective rate higher than average:	
78th Division, Camp Dix, Wrightstown, N. J.	14.7
80th Division, Camp Lee, Petersburg, Va.	25
85th Division, Camp Custer, Battle Creek, Mich.	16.5
88th Division, Camp Dodge, Des Moines, Iowa	28.5
91st Division, Camp Lewis, American Lake, Wash.	28.3
4. VENEREAL DISEASE—	
Admission rate all troops	133.4
Admission rate National Guard (Camps) ....annual	106.2
Admission rate National Army	204.8
Camps National Guard having rate above average:	
29th Division, Camp McClellan, Anniston, Ala.	139.3
30th Division, Camp Sevier, Greenville, S. C.	150.6
31st Division, Camp Wheeler, Macon, Ga.	254.5
33d Division, Camp Logan, Houston, Tex.	134.5
34th Division, Camp Cody, Deming, N. Mex.	134.2
35th Division, Camp Doniphan, Fort Sill, Okla.	114.9
36th Division, Camp Bowie, Fort Worth, Tex.	168.6
37th Division, Camp Sheridan, Montgomery, Ala.	107.1
38th Division, Camp Shelby, Hattiesburg, Miss.	235.7
39th Division, Camp Beauregard, Alexandria, La.	221.1
Camps National Army having rate above average:	
87th Division, Camp Pike, Little Rock, Ark.	1,103.3
89th Division, Camp Funston, Fort Riley, Kan.	479.4
90th Division, Camp Travis, Fort Sam Houston, Tex.	384.7
91st Division, Camp Lewis, American Lake, Wash.	229.8
5. NUMBER OF CASES OF PNEUMONIA	93
Highest number in any one camp ....(Dodge)	10
NUMBER OF CASES OF MENINGITIS	16
Highest number in any one camp ....(Shelby)	4

SPECIAL DISEASES REPORTED DURING THE WEEK ENDING OCTOBER 12, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
26th, Boston	..	..	..	..	..	..	..	..	..	......
27th, Wadsworth	..	..	..	29	..	..	..	..	..	24 570
28th, Hancock	1	..	..	47	..	..	..	..	1	27,548
29th, McClellan	4	..	3	67	..	4	5	..	..	25,253
30th, Sevier	..	..	6	51	..	..	5	..	..	17,557
31st, Wheeler	3	2	7	56	..	..	26	..	..	11,462
32d, MacArthur	..	13	..	..	..	..	3	..	..	21,127
33d, Logan	1	26	9	44	..	..	1	..	..	17 026
34th, Cody	1	4	..	48	..	..	3	..	..	18 627
35th, Doniphan	2	1	5	44	..	..	11	..	2	19,874
36th, Bowie	..	..	6	57	..	..	9	..	..	17,572
37th, Sheridan	1	..	..	38	..	..	5	1	..	18,246
38th, Shelby	6	2	6	75	..	..	37	4	1	16,548
39th, Beauregard	2	..	8	22	..	..	34	..	..	5,117
40th, Kearney	..	..	..	12	..	..	..	3	..	7,143
41st, Greene	..	..	..	11	..	..	23	2	2	14,983
42d, A. L. Mills	4	..	13	20	..	..	9	..	..	25,677
76th, Devens	1	..	3	62	..	..	..	1	..	35,800
77th, Upton	..	..	..	30	..	..	1	..	..	23,087
78th, Dix	1	..	..	40	..	..	..	..	..	21,537
79th, Meade	1	3	1	16	..	..	..	..	..	22,849
80th, Lee	1	..	..	33	..	..	..	..	..	30 550
81st, Jackson	2	2	5	5	..	..	11	..	..	17 458
82d, Gordon	1	1	14	51	..	..	40	..	..	20,250
83d, Sherman	5	..	..	69	..	..	..	..	..	32,150
84th, Taylor	3	..	3	66	..	1	1	2	..	20,212
85th, Custer	..	..	..	15	..	..	..	..	..	18,200
86th, Grant	4	..	..	22	..	..	..	..	1	20,170
87th, Pike	6	1	10	503	..	..	40	..	..	23,603
88th, Dodge	10	..	..	42	..	..	1	..	..	22,857
89th, Funston	3	..	..	343	..	..	..	..	..	37,201
90th, Travis	4	1	15	223	..	1	..	..	..	31,971
91st, Lewis	8	..	..	156	..	..	1	..	..	35,203

	Regulars, U. S. Army, in U. S. only, 1916		Regulars in U. S. week ending Oct. 12, 1917		Nat'l Guard, All Camps and Dept., week ending Oct. 12, 1917		Nat'l Army, All Camps, week ending Oct. 12, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, diseases only, annual rate per 1000	....	613	....	910.8	....	1013.4	....	994.7
Pneumonia	....	2.59	6	1.4	30	4.8	50	6.0
Dysentery	....	3.97	4	0.9	49	7.1	8	0.9
Malaria	....	12.52	20	4.8	97	14.2	48	5.8
Venereal	....	91.00	214	51.6	660	96.7	1689	204.8
Paratyphoid	....	0.31	1	0.2	0	0	0	0
Typhoid	....	0.21	0	0	4	0.5	2	0.2
Measles	....	20.29	88	21.2	263	38.9	101	12.8
Meningitis	....	0.29	2	0.4	10	1.4	3	0.3
Scarlet fever	....	0.59	8	1.9	6	0.8	1	0.1

7. Deaths by Causes:

Lobar Pneumonia	7
Cerebrospinal Meningitis	3
Appendicitis	2
Myocarditis	2
Bronchopneumonia	2
Delirium Tremens	2
Cerebral Abscess	1
Acute Hemorrhagic Enterocolitis	1
Acute Pulmonary Edema	1
Cardiac Dilatation	1
Tuberculous Enteritis	1
Epilepsy	1
Septic Meningitis (Otitis Media)	1
Suicide	5
Traumatism	3
Traumatism by Firearms	2
Homicide	2
Fracture of Skull	2

ORDERS TO OFFICERS OF THE MEDICAL CORPS

Colonel HENRY D. SNYDER, Medical Corps, to be relieved from duty at the Medical Supply Depot, 628 Greenwich St., New York, and directed to proceed to Washington, D. C., and report in person to the Surgeon-General of the Army, for duty in his office.

Major EDWARD W. LAZELL, Medical Corps, Colorado National Guard, specialist in nervous and mental diseases, to be relieved from Field Hospital Company No. 4, Camp Mills, Garden City, L. I., N. Y., and to report in person to the commanding general thereof and to the commanding officer of the base hospital for duty in his specialty.

Lieut. COLE B. GIBSON, Medical Corps, Meriden Sanitorium, Meriden, Conn., who has passed the preliminary examinations for appointment in the Medical Corps of the Army, to active duty and to proceed to Fort Oglethorpe, Ga., and report in person to the commandant, Medical Officers' Training Camp, Camp Greenleaf, that place, for the required course of instruction.

Lieut.-Col. EDWARD M. TALBOTT, Medical Corps, to be relieved from duty at El Paso, Tex., and to proceed to Fort Oglethorpe, Ga., and report in person to the commandant, Medical Officers' Training Camp, Camp Greenleaf, for duty as instructor.

Colonel JAMES M. KENNEDY, Medical Corps, now at duty at the Port of Embarkation, New York, to proceed to Washington, D. C., and report in person to the Surgeon-General of the Army for consultation, and on completion of this duty to return to his proper station.

Major ELMER E. KEISER, Medical Corps, Pennsylvania National Guard, 3932 Tulip St., Tacony, Philadelphia, to proceed to Camp Green, Charlotte, N. C., and report in person to the commanding general thereof for duty.

Lieut.-Colonel NELSON GAPEN, Medical Corps, now on duty in the office of the chief surgeon, aviation section, Signal Corps, in this city, be detailed as an additional member of the board appointed in paragraph 47, Special Orders, No. 246, War Department, Oct. 20, 1916, for the purpose of examining and determining the fitness of persons who make application for commission in the aviation section of the Signal Officers' Reserve Corps.

Major FREDERICK H. FAUCAR, Medical Corps, to be relieved from duty with the 35th Infantry, Nogales, Ariz., and to proceed to Washington, D. C., and report in person to the Commandant, Army Medical School, for temporary duty.

Major THOMAS J. LEARY, Medical Corps, to be relieved from his present duties at Camp Jackson, Columbia, S. C., and to report in person to the commanding general, 81st Division, that camp, for duty as commanding officer of the base hospital.

Major JAMES F. JOHNSTON, Medical Corps, from his present duties at Camp Jackson, Columbia, S. C., to report in person to the commanding general, 81st Division, that Camp, for duty as sanitary inspector.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Birmingham, Ala., for duty as Medical Member of Examining Board, Lieut. GASTON W. ROGERS, Birmingham.

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. ERNEST A. MOORE, Coatopa.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. HOWARD P. RANKIN, Midway.

To Monmouth, N. J., for duty with the signal battalion, from Fort Oglethorpe, Lieut. AUSTIN F. J. BOYD, Emelle.

To Neurological School, University of Pennsylvania, Philadelphia, Pa., for intensive training in brain surgery, from Fort Oglethorpe, Lieut. JAMES L. BOWMAN, Union Springs.

To San Antonio, Tex., Kelly Field, for duty, Lieut. EDGAR W. DALY, Birmingham.

Arizona

To Boston, Mass., for a course of instruction in military roentgenology, Lieut. RICHARD FAVOUR, Keams Canon.

To Fort Oglethorpe, for instruction, Lieut. HARRY J. FELCH, Phoenix.

To New York City, U. S. Army General Hospital No. 1, Lieut. THERON H. SLAUGHTER, Miami.

Arkansas

To Camp Grant, Rockford, Ill., for duty in the division of ophthalmology, section of surgery of the head, Capt. JOHN H. HARVEY, Waldron.

To Camp Pike, Little Rock, for temporary duty, Lieut. SAMUEL McA. MAUNEY, Earl.

California

To Camp Kearny, Linda Vista, Calif., for duty, Capt. ALFRED E. BANKS, San Diego; for temporary duty, Lieuts. EDWARD E. TREDWAY, Pasadena; ARTHUR L. DAVIS, for the examination of troops, and for service in the base hospital in his specialty, from Presidio, San Francisco, HAROLD W. WRIGHT, San Francisco.

To County Hospital, Los Angeles, Calif., for a course of instruction in military roentgenology, Lieut. RAY A. CARTER, Los Angeles.

To Fort Benjamin Harrison, for a course of instruction in tuberculosis examinations, Lieut. ROYAL W. DUNHAM, Los Angeles.

To Neurological School, University of Pennsylvania, Philadelphia, Pa., for intensive training in brain surgery, Capt. STERLING BUNNELL, San Francisco; Lieut. WARREN B. ALLEN, Oakland.

To Reorganization Camp, Presidio, San Francisco, for the purpose of instructing medical and line officers and to examine orthopedic cases, Capt. MAYNARD C. HARDING, San Diego.

Colorado

To Camp Sherman, Chillicothe, O., for duty, from Fort Benjamin Harrison, Lieut. CHARLES E. CONGDON, Breckenridge.

To Fort Oglethorpe for instruction, Lieut. WILLIAM R. CAMPBELL, Denver.

Connecticut

To Camp Upton, Yaphank, L. I., for temporary duty, Lieut. CHARLES L. BANKS, Bridgeport.

District of Columbia

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. WILLIAM R. BUCHANAN, Washington.

To Camp Robinson, Sparta, Wis., for duty with the 17th Field Artillery, from Fort Oglethorpe, Lieut. HOWARD W. BARKER, Washington.

To New York, N. Y., for orthopedic work, Lieut. JAMES H. ALLEN, Washington.

To Washington, D. C., for duty as member of a medical research board, Aviation Section, Signal Corps, Majors EDWARD G. SEIBERT and WILLIAM H. WILMER, Washington.

Florida

To Camp Shelby, Hattiesburg, Miss., for temporary duty, Lieut. JOHN A. NEWNHAM, Clermont.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieuts. SHALER A. RICHARDSON, Jacksonville; JOHN T. BRADSHAW, San Antonio.

Georgia

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. JOHN W. BRADLEY, Woodstock.

To Camp Johnston, Jacksonville, Fla., for duty, from Fort Oglethorpe, Lieut. HAROLD I. REYNOLDS, Athens.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. DAVID M. SILVER, Augusta.

To Neurological School, University of Pennsylvania, Philadelphia, Pa., for intensive training in brain surgery, Capt. CHARLES E. DOWMAN, Atlanta.

To New York, N. Y., for orthopedic work, Lieut. HUGH I. BATTEY, Atlanta.

To Rockefeller Institute, New York, for a course of instruction in laboratory work, from Army Medical School, Lieut. ROBERT C. WALKER, Waycross.

To Walter Reed General Hospital, Tacoma Park, D. C., for duty in the surgical service, Capt. THOMAS C. DAVISON, Atlanta.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieut. JOHN H. PHILLIPS, Oakhurst.

Idaho

To Fort Sill, Okla., Camp Doniphan, for duty as member of board of medical officers for the special examination of the command for tuberculosis, Lieut. CLYDE E. WATSON, Nampa.

Illinois

To Camp Beauregard, Alexandria, La., for duty as member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. CLARENCE McK. CHEADLE, Rockford.

To Camp Grant, Rockford, Ill., for temporary duty, Lieut. John L. Rock, Chicago.

To Camp McClellan, Anniston, Ala., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. SAMUEL M. MARCUS, Chicago.

To Camp Meade, Annapolis Junction, Md., and report in person to commanding general and to the commanding officer of the base hospital for duty as assistant to the chief of the medical service, Lieut. HERMON H. COLE, Springfield.

To Camp Sherman, Chillicothe, O., for duty from Fort Benjamin Harrison, Lieuts. WALTER S. BEBB, Downers Grove; for duty in the division of ophthalmology section of surgery of the head, WALTER D. STEVENSON, Quincy.

To Camp Taylor, Louisville, Ky., for temporary duty, Lieut. ELIOT C. DUMARS, Peoria.

To County Hospital, Chicago, Ill., for instruction in military roentgenology, Lieut. HAROLD SWANBERG, Chicago.

To Fort Oglethorpe for instruction from County Hospital, Chicago, Ill., Lieuts. FRANK A. BEARDSLEY, Champaign; for instruction, FRANK E. NAGEL, Secor.

To Fort Sheridan, Ill., for the purpose of examining in his specialty, Capt. CHARLES RICKSHER, Kankakee.

To Neurological School, University of Pennsylvania, Philadelphia, Pa., for intensive training in brain surgery, from Fort Benjamin Harrison, Capts. THOMAS E. CHERRY, Cowden; CHARLES J. SWAN, Evanston.

To Philadelphia, Pa., for a course of instruction in orthopedic surgery from Fort Benjamin Harrison, Lieut. MANDEL A. I. COHEN, Chicago.

To Psychopathic Hospital, Ann Arbor, Mich., for intensive training in his specialty, Lieut. ISAAC J. FRISCH, Chicago.

To Rockefeller Institute, New York, for duty from Camp Devens, Ayer, Mass., Lieut. ARTHUR W. ALLEN, Robinson.

To Washington, D. C., for duty in Surgeon-General's Office, Capt. PAUL B. MAGNUSON, Chicago.

To his home and return to the inactive list of the Medical Reserve Corps, after completing course at University of Pennsylvania, Lieut. GEORGE H. SCHROEDER, Chicago.

Indiana

To Camp Cody, Deming, N. M., for duty, from Camp Grant, Rockford, Ill., Major JOHN W. SLUSS, Indianapolis; for duty in the surgical service, Lieut. REAVILL M. WALDEN, Evansville.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieuts. ANDREW S. NEWELL, Converse; HOMER S. HEWITT, De Motte; DAVID E. REED, Russellville.

To Camp Funston, Fort Riley, Kan., for temporary duty, Lieut. GEORGE H. SMITH, Newcastle.

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. WILLIAM W. HOGGATT, French Lick.

To Camp Lewis, American Lake, Wash., for duty with the Thirtieth Engineers, Lieut. WILLIAM C. MOORE, Summitville.

To Camp McClellan, Anniston, Ala., base hospital, for duty in the surgical service, Lieut. ELMER C. SINGER, Fort Wayne.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Benjamin Harrison, Capt. JOHN E. METCALF, Gary; Lieuts. HERMAN M. BAKER, Holland; JAMES L. WALKER, La Fontaine; RUFUS J. DANNER, Terre Haute.

To Fort Oglethorpe, for instruction, Lieuts. GEORGE B. KENT, Mulberry; CLARENCE L. BOCK, Muncie.

To Indianapolis, for the purpose of assuming charge of physical examining unit, Aviation Section, Lieut. BERNARD J. LARKIN, Indianapolis.

Honorably discharged from the Medical Reserve Corps of the Army, Capt. CHARLES E. BARNETT, Fort Wayne.

To the inactive list of the Medical Reserve Corps, on account of being physically disqualified for active service, Lieut. EDGAR H. MYERS, South Bend.

Iowa

To Camp Pike, Little Rock, Ark., for temporary duty, Capts. JOHN W. CUNNINGHAM, Dumont; GUTHEIR McCONNELL, Waterloo.

To Camp Grant, Rockford, Ill., for duty, Lieuts. WALTER A. SMITH, Donnellson; ELMER J. LAMBERT, Ottumwa.

To Camp Funston, for temporary duty from Medical Officers' Training Camp, Fort Riley, Kan., Lieut. GEORGE S. BAWDEN, Davenport.

To Fort Oglethorpe, for instruction, Lieut. MEREDITH MALLORY, Des Moines.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Lieut. THOMAS R. GITTINS, Iowa City.

To Philadelphia, for a course of instruction in orthopedic surgery, Lieuts. THOMAS F. THOMSEN, Charter Oak; FRANK G. MURPHY, Mason City.

To Washington, D. C., for duty as member of a medical research board, Aviation Section, Signal Corps, Major EUGENE R. LEWIS, Dubuque.

To inactive list of the Army, Capt. JAMES E. KESSELL, Des Moines.

Kansas

To Camp Lewis, American Lake, Wash., for duty in the Division of Ophthalmology, section of surgery of the head, Lieut. FRANK C. ELLIS, Frederick.

To Camp MacArthur, Texas, for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. LEWIS S. HARVEY, Dunlap.

To Fort Riley, for duty, Major FREDERIC W. O'DONNELL, Junction City; for duty in the surgical service, from Camp Funston, Capt. JAMES C. BUTLER, Stafford; for duty as assistant roentgenologist, Lieut. GUY A. FINNEY, Wamega.

To Kansas City, Mo., for a course of instruction in military roentgenology, from Fort Riley, Lieut. PAUL V. ANNADOWN, Centralia.

Kentucky

To Camp Grant, Rockford, Ill., for temporary duty, Lieut. GUY D. GRIGGS, *Hitesville*.

To Camp Taylor, Louisville, Ky., for temporary duty, Lieut. ALBERT STEWART, Frankfort.

To Fort Riley, as assistant in ophthalmology, section of surgery of the head, from Medical Officers' Training Camp, Lieut. GEORGE A. ROBERTSON, Louisville.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Lieuts. WILLIAM D. REDDISH, Lexington; DAVID C. DONAN, Morganfield.

To inactive list of the Medical Reserve Corps on account of being physically disqualified for active duty, Lieut. ALBERT C. BOND, Ashland.

Louisiana

To Camp Beauregard, Alexandria, La., for temporary duty, Lieut. COVINGTON H. SHARP, New Orleans.

To Camp Sevier, Greenville, S. C., for duty in the surgical service, from Fort Oglethorpe, Lieut. THADDEUS I. ST. MARTIN, *Houma*.

To Camp Wheeler, Macon, Ga., for duty *from Fort Oglethorpe*, Lieut. WILEY R. BUFFINGTON, New Orleans.

To Fort Oglethorpe, for instruction, Lieuts. *JOSEPH W. GARRETT*, ROBERT J. PLATT, New Orleans.

To Rockefeller Institute, New York, for a course of instruction in laboratory work, from Fort Oglethorpe, Lieut. PAUL K. RAND, Alexandria.

Honorably discharged from Medical Reserve *Corps of the Army*, Lieut. FRANCIS F. ROUGON, Oscar.

Maine

To Camp Mills, Garden City, L. I., for duty with Field Hospital Co. No. 4, from Allentown, Pa., Lieut. DUDLEY C. KALLOCH, Portland.

To Portland, for duty as medical member *of the Examining Board*, Lieut. JULIUS C. ORAM, Portland.

Maryland

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. EDWARD P. SIMPSON, Chance.

To Camp Lee, Petersburg, Va., for temporary duty, Lieut. WILLIAM H. KABLE, Woodsboro.

To Camp McClellan, Anniston, Ala., to act as a member of a board of medical officers for *the special examination* of the command for tuberculosis, from Walter Reed General Hospital, Capt. CHARLES W. RAUSCHENBACH, Baltimore.

To Phills Clinic, Baltimore, *for intensive training* in his specialty, Lieut. HENRY E. AUSTIN, Baltimore.

To Plattsburg Barracks, N. Y., for duty in connection with ophthalmology and otolaryngology, *section of surgery* of the head, Capt. ALEXANDER D. McCONACHIE, Baltimore.

To Rockefeller Institute, New York, *for a* course of instruction in laboratory work, from Fort Oglethorpe, Lieut. HARRY C. SCHMEISSER, Baltimore.

To San Antonio, Texas, Kelly Field, for duty, Lieut. FREDERICK C. W. REINHARD, Baltimore.

To Washington, D. C., and *report in person to the* Surgeon-General of the Army for temporary duty in his office, Major ROBERT T. TAYLOR, Baltimore.

Massachusetts

To Army Medical School, Washington, D. C., Lieut. JOSEPH H. McGUIRE, Boston.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieuts. WILFRID T. LA FORTUNE, Fitchburg; DENNIS J. LOWNEY, New Bedford.

To Camp Devens, Ayer, Mass., for temporary duty, Capts. CORNELIUS J. McGILLICUDDY, *Boston; for the* purpose of examining the troops in his specialty and for duty in the neuropsychiatric buildings at the base *hospital, from* Fort Adams, R. I., MORGAN B. HODSKINS, Palmer; for duty in the surgical service, from Fort Ethan Allen, Vt., Lieuts. ARTHUR W. ALLEN; for duty in the hospital laboratory, FRANK G. NORBURY, Boston; for temporary duty, RICHARD P. MacKNIGHT, Fall River; FRANK W. MATHEWSON, New Bedford.

To Camp Lee, Petersburg, Va., for duty in the genito-urinary and dermatologic section, Capt. JOSEPH B. SAYLES, Taunton.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Benjamin Harrison, Lieuts. CLARENCE H. DOBSON, Conway; CLARKE S. GOULD, Norwood; VICTOR A. AIMENE, Winchester.

To Camp Upton, Yaphank, L. I., for duty in the venereal section from Camp Wadsworth, Spartanburg, S. C., Lieut. FREDERICK R. SANBORN, Lynn.

To Niagara, N. Y., for duty with Field Hospital No. 30, from Field Hospital, No. 28, Capt. Dana W. Drury, Boston.

To Fort Sam Houston, Texas, for duty in the Department Laboratory, Lieut. Charles B. Spruit, Boston.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieuts. GEORGE H. BIGELOW and DAVID M. HASSMAN, Boston.

To Syracuse, N. Y., for the purpose of making examination of the troops in his specialty, Lieut. HENRY R. VIETS, Boston.

To his home and return to the inactive list of the Medical Reserve Corps, Capt. CHARLES WHELAN, Higham.

Michigan

To Camp Custer, Battle Creek, Mich., for duty in connection with the Division of Otolaryngology, section of surgery of the head, Major ROY B. CANFIELD; for duty, from Fort Benjamin Harrison, Lieuts. HARRY M. MALEJAN, Ann Arbor; WYNAND VanK. PYLE, Detroit; JAMES A. HUMPHREY, Lansing.

To Camp Devens, Ayer, Mass., for temporary duty, Capt. JOHN F. CONNERS, Detroit.

To Camp Sherman, Chillicothe, Ohio, for duty from Fort Benjamin Harrison, Capt. EARL M. McCOY, Grand Ledge; Lieuts. SHELDON B. YOUNG, Caseville; ROBERT C. MOEHLIG, Detroit; DAN H. EATON, Kalamazoo; JOE DEPRESS, Zieland.

Honorably discharged from the Medical Reserve Corps of the Army, from El Paso, Texas, Lieut. CULLEN H. HENDRY, Detroit.

Minnesota

To Camp Bowie, Fort Worth, Texas, for duty in connection with the division of ophthalmology, section of surgery of the head, Lieut. HARRY E. CANFIELD, Willmar.

To Camp Dix, Wrightstown, N. J., for temporary duty, Lieut. CHARLES D. SQUIRES, Rochester.

To Camp Dodge, Des Moines, Iowa, for temporary duty, Capt. HERBERT A. MORRISS, Minneapolis.

To Camp Grant, Rockford, Ill., for temporary duty, Lieut. ARTHUR I. ARNESON, Emmons.

To Camp Kearny, Linda Vista, Calif., for temporary duty, Capt. RALPH J. SEWALL, Crosby.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Lieuts. ADOLPH M. HANSON, Faribault; OSCAR M. KLINGEN, Minneapolis; HARRY B. ZIMMERMANN, St. Paul.

Mississippi

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. ARCHIBALD W. McNEAL, Ruleville.

To Camp Logan, Houston, Texas, for duty in connection with the Division of Otolaryngology, section of surgery of the head, Capt. EWING F. HOWARD, Vicksburg.

To Camp Wheeler, Macon, Ga., for duty from Fort Oglethorpe, Lieut. HENRY F. SPROLES, Vicksburg.

To Jackson, Miss., to examine applicants and appointment in the Medical Reserve Corps of the Army, and on completion of this duty to return to his home and to the inactive list of the Medical Reserve Corps, Lieut. INMAN W. COOPER, Jr., Meridian.

To San Antonio, Texas, Kelly Field, for duty, Lieut. SAMUEL T. WELLS, Alligator.

Missouri

To Camp Bowie, Fort Worth, Texas, for duty as member of a board of medical officers of the special examination of the command for tuberculosis, from Fort Riley, Lieuts. SAMUEL R. JOHNSON, St. Charles; ALLEN G. WAINWRIGHT, St. Louis.

To Camp Funston, Fort Riley, Kan., for temporary duty, Capt. ALVIN H. SIPPY, St. Louis.

To Camp Hancock, Augusta, Ga., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. ROBERT E. BYRNS, St. Louis.

To Fort Leavenworth, Kan., for duty in the Department Laboratory, Lieut. BERNARD J. McMAHON, St. Louis.

To Camp Logan, Houston, Texas, for duty in connection with the division of otolaryngology, section of surgery of the head, Lieut. GEORGE A. GRIOT, St. Louis.

To Camp Sherman, Chillicothe, Ohio, for temporary duty, Lieut. JOHN J. DeVEREAUX, Hawk Point.

To Camp Wheeler, Macon, Ga., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Capt. SOLON CAMERON, St: Louis.

To Fort Oglethorpe, for instruction, Lieuts. WILLIAM C. VERNON, Kansas City; ARTHUR L. FUERTH, St. Louis.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Lieut. ELLIOTT K. DIXON, St. Louis.

To Walter Reed General Hospital, Takoma Park, D. C., for duty in his specialty, Capt. GUTHRIE E. SCRUTCHFIELD, Farmington.

To Washington University, St. Louis, for three weeks' intensive training, Lieut. SHERMAN B. HIBBARD, Kansas City.

To the inactive list of the Medical Reserve Corps after completion of a course at University of *Pennsylvania,* Philadelphia, and Rockefeller Institute, New York, Capt. JOHN G. HAYDEN and Lieut. FRANK R. TEACHENOR, Kansas City.

Montana

To Camp Dodge, Des Moines, Iowa, for temporary duty, Capt. ADOLPH T. GILHUS, White Sulphur Springs.

To Camp Grant, Rockford, Ill., for temporary duty, Lieut. HERBERT HAYWARD, Darby.

Nebraska

To Camp Bowie, Fort Worth, Texas, for duty as a member of the board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. JOHN F. ALLEN, Omaha.

Nevada

To Camp Kearny, Linda Vista, Calif., for duty, from Fort Douglas, Utah, Capt. EDWARD D. GIROUX, Winnemucca.

New Hampshire

To Camp Beauregard, Alexandria, La., for duty in the surgical service, from Fort Oglethorpe, Capt. GEORGE M. WATSON, Manchester.

To Camp Devens, Ayer, Mass, for duty, Capt. JAMES J. POWERS, Manchester.

To Fort Oglethorpe, for instruction, Lieut. WALLIS D. WALKER, Portsmouth.

New Jersey

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieuts. CLARENCE A. GREENLEAF, Olean; HOWARD R. RARIG, Palmyra; MORRIS N. LEAVER, Quakertown.

To Camp Funston, Fort Riley, Kan., for duty in connection with the divisin of otolaryngology, section of surgery of the head, from Medical Officers' Training Camp, Fort Benjamin Harrison, Lieut. JEREMIAH B. WINTERSTEEN, Moorestown.

To Camp Pine, New York, for duty with the 15th Field Artillery, from Fort Oglethorpe, Lieut. EDWARD B. ROGERS, Collinswood.

To Camp Sevier, Greenville, S. C., 30th Division, to act as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieuts. EDWARD S. KRANS, Plainfield; for duty in the surgical service from Fort Oglethorpe, WALTER F. KEATING, Ridgewood.

To Camp Upton, Yaphank, L. I., for temporary duty, Lieut. GUSTAVE A. BRAUN, Newark.

To Neurological School, University of Pennsylvania, Philadelphia, Pa., for intensive training in brain surgery, Lieuts. MARTIN W. REDDAN, JOSEPH G. DENELEBECK, Trenton.

To San Antonio, Tex., Kelly Field, for duty, Lieut. SAMUEL L. SALASIN, Atlantic City.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Lieut. EDWARD S. KRANS, Plainfield.

New Mexico

To Camp Doniphan, Fort Sill, Okla., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. ORIN J. WHITCOMB, Raton.

New York

To Ann Arbor, Mich., State Psychopathic Hospital, for intensive training in his specialty, from Medical Officers' Training Camp, Fort Benjamin Harrison, Lieut. ABRAHAM M. RABINER, Albany.

To Army Medical School, Washington, D. C., for duty in the bacteriologic laboratory, Lieut. BYRON D. WHITE, Brooklyn.

To Camp Custer, Battle Creek, Mich., for duty, from Ft. Benjamin Harrison, Capt. GUSTAVE R. MANNING, New York; Lieuts. GEORGE E. HENDERSON, Brooklyn; WILLIAM OSTROW, Buffalo; CHARLES E. E. PANNACI, Gloversville; LEON M. KYSOR, Hornell; MAXIMILIAN FRICK, New York City; EDWARD E. GILLICK, Niagara Falls; EDWIN D. JACKSON, Rochester; ALEXANDER N. LOEWENSTEIN, Troy.

To Camp Devens, Ayer, Mass., for temporary duty, Lieut. THOMAS A. D. SOMERS, New York City.

To Camp Funston, Fort Riley, Kan., for duty in connection with the division of ototlaryngology, section of surgery of the head, from Fort McDowell, Calif., Capt. KENT E. WILLIAMS, Rome; for temporary duty, from Medical Officers' Training Camp, Fort Riley, Lieut. FREDERICK D. KEPPEL, Licklaen.

To Camp Hancock, Augusta, Ga., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Capt. CHARLES H. ERWAY, Elmira.

To Camp McClellan, Anniston, Ala., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieuts. PATRICK J. HIRST, Middle Grove; FRANK J. HERBIG, Staten Island.

To Camp Meade, Annapolis Junction, Md., for temporary duty, Lieut. JAMES H. PAUL, Jamesville.

To Camp Shelby, Hattiesburg, Miss., for duty in the base hospital laboratory, Lieut. RAYMOND SANDERSON, Poughkeepsie.

To Camp Sherman, Chillicothe, O., for duty, from Fort Benjamin Harrison, Lieuts. VALENTINE V. BOURKE, Brooklyn; FREDERICK J. PFISTERER, Ceres; GEORGE J. GEISLER, Hempstead; MILTON G. BURCH, Hornell; VALENTINE C. BAKER, JAMES G. CORNEILLE, LEWIS GREENBERG, JAMES D. MURPHY, JOSEPH SCHAPIRO, New York City; WATSON A. LAWRENCE, Valhalla;

CLINTON E. GOODWIN, Weedsport; LEWELL T. GENUNG, Worcester.

To Camp Taylor, Louisville, Ky., for temporary duty from Medical Officers' Training Camp, Fort Benjamin Harrison, Lieuts. ALFRED BRAUN, SAMUEL H. GEIST, DANIEL POLL, New York City.

To Camp Upton, Yaphank, L. I., for temporary duty, Lieuts. HYMAN I. TEPERSON, Brooklyn; RALPH D. REID, Central Islip; MAX CLIMAN, HUGO A. SIEBENEICHEN, New York City.

To Camp Wadsworth, Spartanburg, S. C., and Camp Lee, Petersburg, Va., for the purpose of inspecting the methods in use for the protection of the command against infection with venereal diseases, and on completion to return to his proper station, Major EDWARD L. KEYES, Forest Hills.

To Camp Wadsworth, Spartanburg, S. C., 27th Division, to act as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reed General Hospital, Lieut. EPHRAIM GOLDMAN, New York City.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. ARTHUR B. GRAVES, Perrysburg.

To Cornell Medical College, New York, for a course of military roentgenology, Lieuts. AARON M. MORGENLANDER, New York City; JOHN C. KNAPP, Philmont.

To Fort Oglethorpe for instruction, Lieuts. DANIEL E. L. STEDEM, Buffalo; WEBB W. WEEKS, New York City; ASA R. DIMOCK, Valatie.

To Neurological School, University of Pennsylvania, Philadelphia, Pa., for intensive training in brain surgery, Capt. IRA COHEN, New York City.

To New York, for orthopedic work, Lieut. NORMAN McL. DINGMAN, New York City.

To Philadelphia, Pa., for a course of instruction in orthopedic surgery, Lieuts. EDWARD A. FLYNN; CARL C. YOUNT, New York City.

To Rockefeller Institute, New York, for a course of instruction in laboratory work, Capts. MORRIS B. BEECROFT, Albany; GEORGE BAEHR, New York City.

To report in person to the surgeon-general of the Army for duty in his office, Capt. GEORGE DRAPER, New York City.

To the inactive list of the Medical Reserve Corps of the Army, Capt. LOUIS HAUSWIRTH, New York City, Lieut. NATHAN D. GARNSEY, Kinderhook.

North Carolina

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. ISRAEL W. MAYERBERG, Selma.

To Camp Jackson, Columbia, S. C., for duty with Ambulance Co. No. 31, Lieut. WILLIAM E. BRACKETT, Caroleen.

To Gettysburg, Pa., reorganization camp for duty, Lieut. KELSO A. CARROLL, Raleigh.

Honorably discharged from the Medical Reserve Corps of the Army, Lieut. RALPH E. DEES, Greensboro.

North Dakota

To Camp Dodge, Des Moines, Iowa, for temporary duty, Lieut. BENJAMIN FRANKSON, Rugby.

To Fort Douglas, Utah, for duty, from Fort Riley, Lieut. JACOB F. BRENCKLE, Kulm.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Capt. ROBERT D. CAMPBELL, Grand Forks.

Ohio

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieuts. RALPH E. POWERS, Akron; EMIL E. WOLF, Cleveland; THEODORE J. KASINSKI, Youngstown.

To Camp Sherman, Chillicothe, O., for duty, from Fort Benjamin Harrison, Lieuts. JOHN T. GIBBONS, Celina; JOHN R. CRUM, Forest; JAMES D. VARNEY, Greenfield; for temporary duty, ALDO V. SIBERT, Lima; ROBERT M. FULWIDER, Zanesfield.

To Camp Taylor. Louisville, Ky., for temporary duty, from Medical Officers' Training Camp, Fort Benjamin Harrison, Lieut. ELMER A. KLEIN, Norwood.

To Fort Oglethorpe for instruction, Lieut. GEORGE C. SMITH, Mansfield.

To Philadelphia, for a course of instruction in orthopedic surgery, Lieut. ALLEN N. WISELEY, Ada.

Oklahoma

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieuts. CHARLES W. BACON, Enid; R. EARLE SMITH, Gracemont.

To Philadelphia, for a course of instruction in orthopedic surgery, from Army Medical School, Lieut. DAVY L. GARRETT, Altus.

To the inactive list of the Medical Reserve Corps of the Army, Lieut. FRANK L. CARSON, Shawnee.

Oregon

To Fort Douglas, Utah, for duty, Lieut. JAMES A. BEST, Pendleton.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Capt. LAWRENCE SELLING, THOMAS M. JOYCE, Portland.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. HAROLD T. ALLISON, Heppner.

Pennsylvania

To Camp Beauregard, Alexandria, La., for duty in the surgical service, from Fort Oglethorpe, Lieuts. LEOPOLD M. JACOBS, Philadelphia; NORMAN A. TIMMONS, South Bethlehem.

To Camp Custer, Battle Creek, Mich., for duty with the division of ophthalmology, section of surgery of the head, Lieuts. MARION H. POWERS, Point Marion; for duty from Fort Benjamin Harrison, JOHN H. MURRAY, Punxsutawney.

To Camp Dix, Wrightstown, N. J., for temporary duty, Lieut. SNOWDEN K. HALL, Pittsburgh.

To Camp Hancock, Augusta, Pa., Lieuts. HAROLD S. BROOMALL, for duty in the division of otolaryngology, section of surgery of the head; from Fort Oglethorpe, EDWARD W. COLLINS, Philadelphia; for temporary duty from Fort Oglethorpe, THOMAS A. BOOTH, Boothwyn; EDMOND B. PIPER, Philadelphia.

To Camp McClellan, Anniston, Ala., for duty in connection with the division of otolaryngology, section of surgery of the head, Lieut. AARON L. BISHOP, Philadelphia.

To Camp Meade, Annapolis Junction, Md., for temporary duty, Lieuts. JAMES S. HAMMERS, Danville; EDWIN S. COOKE, Philadelphia; GEORGE G. GRAZIER, for duty in charge of the division of otolaryngology, section of surgery of the head, WILLIAM P. BARNDOLLAR, Pittsburgh.

To Camp Sherman, Chillicothe, *Ohio,* for duty, from Fort Benjamin Harrison, Capt. FREDERICK A. RUPP, Lewistown.

To Camp Wadsworth, Spartanburg, S. C., for duty in charge of the division of ophthalmology, section of surgery of the head, from Camp McClellan, Anniston, Ala., Lieut. CHARLES M. STILES, Philadelphia.

To Camp Wheeler, Macon, Ga., *for* duty *from* Fort Oglethorpe, Lieuts. FRANKLIN P. LYTLE, Birdsboro; JOHN H. STEARNS, Delaware Water Gap; CHARLES C. CROUSHORE, Greensburg; EDWARD Y. ORD, McKeesport; PORTER M. WALL, Monongahela; VINCENT J. FENERTY, JACOB J. RUTBERG, Philadelphia; WILLIAM J. STEWART, Pittsburgh; WALTER M. BERTALET, THOMAS M. SNYDER, Reading.

To Canal Zone, Panama Canal Dept., for duty, Capt. ISAAC H. JONES, Philadelphia.

To Fort Benjamin Harrison for duty in the bacteriologic laboratory of the base hospital, from Army Medical School, Lieut. CARL GOEHRING Pittsburgh.

To Fort Oglethorpe for instruction, Lieuts. HOWARD P. BLAKE, Altoona; CLIFFORD B. LULL, Philadelphia.

To Fort Riley for duty in the surgical service, from Fort Oglethorpe, Lieuts. GEORGE M. PURVES, ARTHUR R. WOODS, for duty in connection with the division of ophthalmology, section of surgery of the head, from Fort Benjamin Harrison, for duty in the bacteriologic laboratory, Philadelphia.

To Gettysburg, Pa., for duty with the machine gun battalion, from Fort Oglethorpe, Lieut. WILLIAM E. LEFFLER, Ashland.

To Harvard Medical School, Boston, Mass., for orthopedic instruction, Lieut. RANDALL ZIMMERMAN, Wilmerding.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Lieut. LOUIS H. MAYER, JR., Johnstown.

To Pine Camp, New York, for duty with the 15th Field Artillery, from Fort Oglethorpe, Lieut. ELMER HESS, Erie.

To Pittsburgh, Pa., for a course of instruction in military *roentgenology*, Lieut. CHARLES H. POOLE, Ruffsdale.

To San Antonio, Texas, Kelly Field, for duty, Lieuts. RAY N. LEWIS, *Apollo;* HENRI SCHMID, *Pittsburgh.*

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examinations, from Plattsburg Barracks, N. Y., Capt. ALBERT P. FRANCINE, Philadelphia.

To Washington University, St. Louis, Mo., for three weeks' intensive training and on completion of this course to return to his home and to the inactive list of the Medical Reserve Corps, Capt. THOMAS C. STELLWAGON, JR., Philadelphia.

To inactive list of the Medical Reserve Corps, from Fort Ethan Allen, Vt., Major JACK G. GITTINGS, Philadelphia.

Philippine Islands

To Manila, P. I., Philippine Dept. for duty, Major HENRY PICK, Manila.

Rhode Island

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieut. PATRICK J. MANNING, Wickford.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort *Benjamin Harrison,* Lieuts. WILLIAM P. BERNARD, Central Falls; FRANCIS E. CROGHAN, Providence.

South Carolina

To Camp Lee, Petersburg, Va., for temporary duty, Lieut. WILLIAM E. LESTER, Lake View.

To New York, for orthopedic instruction, from Army Medical School, Lieut. KARL L. ABLE, Leesville.

To San Antonio, Texas, Kelly Field, for duty, Lieut. WILLIAM S. McMURRAY, Lockhart.

Honorably discharged from the Medical Reserve Corps of the Army, Major FRANCIS L. PARKER, Charleston.

South Dakota

To Fort Riley, for duty in the surgical service, Lieut. LINDSAY Z FLETCHER, Montrose.

Tennessee

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. DAVID T. AUSTIN, Bogota.

To Camp McClellan, Anniston, Ala., for temporary duty, Lieut. THOMAS M. HARPER, Medina.

To Camp Pike, Little Rock, Ark., for temporary duty, Capt. WILLIAM E. HOWELL, Morristown.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. ROBERT B. GRIFFIN, Ridgley.

To Cornell Medical College, New York, *for a course of instruction in* military roentgenology, from Medical Officers' Training Camp, Fort Benjamin Harrison, Lieut. THOMAS O. MENEES, Nashville.

To Fort Oglethorpe for instruction, Lieut. WILLIAM C. COLBERT, Memphis.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Capt. WILLIAM H. SMITH, Brunswick.

To San Antonio, Texas, Kelly Field, for duty, Lieut. CHARLES HENDLEY, Cottagegrove.

Honorably discharged from the Medical Reserve Corps of the Army on account of being physically disqualified for active service, from Fort Oglethorpe, Lieut. SNETHEN B. DUGGAN, Engleville.

Texas

To Atlanta, Ga., for duty in hospital laboratory, Lieut. GEORGE C. BRUNNELL, *El Paso.*

To Camp Dodge, Des Moines, Iowa, for temporary duty, Lieut. JOHN E. WILSON, Shiro.

To Camp Grant, Rockford, Ill., for duty as chief of the surgical service, from Medical Officers' Training Camp, Fort Oglethorpe, Capt. JOHN W. LANE, Houston Heights.

To Camp McClellan, Anniston, Ala., for duty, from Manila, Philippine Islands, Lieut. RUFUS H. HAGOOD, JR., Texas City.

To New York, for orthopedic work, Lieut. QUINCY B. LEE, Wichita Falls.

To *report by telegraph to the commanding* general, Southern Dept., *for assignment to duty, Lieuts.* DIMETRUS J. LOUIS, *El Paso;* THOMAS D. VAUGHAN, Taylor; LYTTON C. AMENT, Victoria; JOHN B. BAUGUSS, Whitewright.

To Washington, D. C., for duty in the office of the Surgeon-General of the *Army, from duty at Camp Travis, Fort Sam Houston,* Texas, Lieut. CLAUDE C. CODY, JR., Houston.

Utah

To Linda Vista, Calif., for temporary duty, Lieut. ONTIE HOVENDEN, Salt Lake City.

Vermont

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieut. GEORGE E. LATOUR, Burlington.

To Canal Zone, and report in person to the Governor of the Panama Canal, Balboa Heights, for assignment to duty, Capt. GEORGE G. MARSHALL, Rutland.

Virginia

To Camp Sheridan, Montgomery, Ala., base hospital for duty in the surgical service, Lieut. HERBERT W. ROGERS, Nassawadox.

To Camp Wheeler, Macon, Ga., for duty, from *Fort Oglethorpe,* Lieut. WILLIAM S. WILEY, Bristol.

To Fort Oglethorpe, for instruction, Capt. WILSON E. DRIVER, Norfolk.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Lieuts. JOSEPH F. GEISINGER, ALVAH L. HERRING, FRANK H. REDWOOD, Richmond.

To Newport News, Norfolk, Petersburg, Richmond, Alexandria, Washington, Winchester, *Harrisonburg,* Staunton, Charlottesville, Lynchburg, Roanoke, Pulaski, *Bristol, Lynchburg,* Danville, South Boston, Richmond, Roanoke, for the purpose of examining applicants for appointment in the Medical Reserve Corps of the Army and upon completion of this duty to return to their proper station, Major JOHN G. NELSON, Lieut. JOSEPH T. McKINNEY, *Richmond.*

To Richmond Medical College, Richmond, Va., for a course of instruction in *military roentgenology,* Lieut. JAMES N. WILLIAMS, Clifton Forge.

Washington

To Army Medical School, Washington, D. C., for preparation for nutritional survey, Lieuts. ROLLA B. HILL, Colfax, for instruction, JOSEPH R. TURNER, Tacoma.

To Rockefeller Institute, New York, for a course of instruction in laboratory work, from Army *Medical* School, Capt. AUSTIN U. SIMPSON, Seattle.

West Virginia

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. CLERMONT E. PARK, Parkersburg.

To Macon, Ga., and report in person to the commanding officer Remount Dept., for duty, Lieut. JOSEPH K. COWHERD, Ridgeley.

Wisconsin

To Camp Hancock, Augusta, Ga., for duty as *member* of a board of medical *officers* for the special examination of the *command* for tuberculosis, *from* Fort Benjamin Harrison, Lieut. ADELOR E. GENDRON, River Falls.

To County Hospital, Chicago, Ill., for instruction *in* military roentgenology, Lieut. MAXIMILIAN W. MOELLER, Milwaukee.

To Neurological School, University of Pennsylvania, Philadelphia, for intensive training in brain surgery, Lieut. *ORVILLE* R. LILLIE, Milwaukee.

ORDERS TO CONTRACT SURGEONS

Arkansas

To Camp Sheridan, Montgomery, Ala., for the purpose of conducting examinations in his specialty, and upon completion of this duty to return to his home, Dr. WILLIAM E. HUGHES, *Pocahontas.*

California

To Walter Reed General Hospital, Washington, D. C., for instruction in tuberculosis examination, Dr. FREDERICK A. BROWN, Hayward.

Colorado

To Camp Doniphan, Fort Sill, Okla., for duty as a member of the tuberculosis examining board, Dr. J. W. CRAIGHEAD, *Denver.*

Connecticut

To Camp Dix, Wrightstown, N. J., *for duty as* member of tuberculosis examining board, Dr. JOSEPH WALSH, New Britain.

To Camp Greene, Charlotte, N. C., for duty as a *member* of medical officers for the examination for *tuberculosis,* from Walter Reed General Hospital, Dr. GEORGE H. JENNINGS, *Jewett City.*

To Camp Wadsworth, Spartanburg, S. C., *from* Walter Reed General Hospital, Takoma Park, D. C., for duty as a member of the tuberculosis examining board, Dr. HUGH F. KEATING, New Haven.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examinations, Drs. WILLIAM H. GRAY, Mystic; PATRICK J. CASSIDY, Norwich.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, Dr. PERCY HICKLING, Washington.

Illinois

To Camp Sevier, Greenville, S. C., for duty as *member of the tuberculosis* examining board, Dr. JAMES S. RANKIN, De Kalb.

To Fort Benjamin Harrison for instruction in tuberculosis examination, Drs. WERNER E. EARLANDER, BENEDICT W. ROGERS, Chicago; CLARENCE N. McCUMBER, Lewiston.

Indiana

To Camp Sheridan, Montgomery, Ala., from Fort Benjamin Harrison, for duty as member of tuberculosis examining board, Dr. CHARLES J. McINTYRE, Indianapolis.

To Fort Benjamin Harrison for instruction in tuberculosis examinations, Drs. H. E. WHITLEDGE, Evansville; STEVENS C. MARKLEY, Richmond.

Iowa

To Camp Logan, Houston, Tex., for the purpose of acting as a member of a board of medical officers *for the special* examination *for* tuberculosis, Dr. ROBERT E. CONNIFF, Sioux City.

To Fort Benjamin Harrison for instruction in tuberculosis examination, Dr. ANDREW L. BELT, Fort Dodge.

To Fort Dodge, Des Moines, Ia., 88th Division, as member of board of medical officers for examination for tuberculosis, Drs. WALTER L. BIERRING, ADDISON C. PAGE, E. B. WINNETT, Des Moines.

Louisiana

To Camp Beauregard, Alexandria, La., 38th Division, for duty as member of the tuberculosis examining board, Drs. LEON J. MANVILLE, *Houma;* L. O. CLARK, Lafayette; ROBERT W. O'DONNELL, THOMAS E. WRIGHT, Monroe; WALTER J. DURAL, A. L. LEVIN, New Orleans.

Maryland

To Phipps Clinic, Baltimore, Md., for duty as director in his specialty, Dr. ADOLF MEYER, Baltimore.

To their homes, Drs. EUGENE J. LEOPOLD, A. P. HERRING, Baltimore; J. P. WADE, Cantonsville.

Massachusetts

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examination, Drs. *JOSEPH A. COGAN, Boston;* L. T. NEWHALL, Brookfield.

Michigan

To Camp MacArthur, Waco, Tex., *32d* Division, for the *purpose of* acting as a member of a board of *medical officers* to examine *for* tuberculosis, Dr. B. A. SHEPARD, *Kalamazoo.*

To Fort Benjamin Harrison, for instruction in tuberculosis examinations, Dr. E. B. PIERCE, Howell.

To State Psychopathic Hospital, Ann Arbor, Mich., for duty as specialist in nervous and mental diseases, *Dr.* ALBERT M. BARRETT, Ann Arbor.

Minnesota

To Des Moines, Ia., Camp Dodge, for duty as member of board of medical officers for tuberculosis examination, from Fort Snelling, Minn., Drs. WALTER J. MARCLAY, HARRY R. *NORDLEY,* Minneapolis.

To Camp Lewis, American Lake, Wash., for purpose *of examining* in his specialty and upon completion of this duty *to return* to his home, Dr. RALPH E. MORRIS, Minneapolis.

To Camp Logan, Houston, *Tex., for duty* as a member *of the tuberculosis* examining board from Fort Snelling, Dr. *ROBINSON* BOSWORTH, St. Paul.

To Fort Snelling, Minn., as roentgenologist, Dr. *CHARLES* A. DONALDSON, *Minneapolis.*

Missouri

To Fort Benjamin Harrison for instruction in tuberculosis examination, Dr. L. T. HALL, Potosi.

To his home from duty at Fort Worth, Tex., Dr. PHILIP COGAN, St. Louis.

New Jersey

To Camp Dix, Wrightstown, N. J., for duty as member of tuberculosis examining board, Dr. MARCUS W. NEWCOMB, Brown Mills.

New Mexico

To Fort Bayard, N. M., Army General Hospital for duty, Dr. H. W. BREWER, Columbus.

To his home from duty at Camp Cody, Dr. E. D. McKINLEY, Alamorordo.

New York

To Camp Sevier, Greenville, S. C., for duty as member of board of medical officers for tuberculosis examinations, Drs. FRANK F. FINNEY, Burke; LEONARD P. SPRAGUE, Chateaugary.

To Camp Upton, Yaphank, L. I., for the purpose of conducting examinations in his specialty, from Camp Mills, L. I., Drs. GLENTWORTH R. BUTLER, TASKER HOWARD, Brooklyn.

To Camp Wadsworth, Spartanburg, S. C., for duty as a member of the tuberculosis examining board, from Walter Reed General Hospital, Dr. PERCIVAL F. DALPHIN, Malone.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examination, Drs. HOWARD VAN RENSSELAER, Albany; ALFRED G. WILDING, Malone.

To Washington, D. C., for duty on the Advisory Committee on Venereal Diseases, Dr. GROVER W. WENDE, Buffalo.

To their homes, Drs. T. STUART HART, GEORGE H. KIRBY, ROBERT BURLINGTON, New York City.

North Carolina

To Camp Greene, Charlotte, N. C., from Fort Oglethorpe for duty as member of board of medical officers for special examination for tuberculosis, Dr. F. B. SPENCER, Salisbury.

Ohio

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Dr. E. C. DAVIS, Cleveland.

Oklahoma

To Fort Reno, Okla., for duty, Dr. W. R. MILLER, Calumet.

Oregon

To Camp Lewis, American Lake, Wash., for duty as a member of a board of medical officers for tuberculosis examination, Drs. BRICE R. WALLACE, Albany; GUY L. BOYDEN, Pendleton; C. D. BODINE, NOBLE W. JONES, RAY W. MATSON, RICHARD WELLINGTON, Portland.

Pennsylvania

To Camp Dix, Wrightstown, N. J., for duty as members of tuberculosis examining board, Drs. ALIX H. DAVISSON, J. CLINTON FOLTZ, ELMER H. FUNK, MOSES JACOB, ISADORE KAUFMAN, H. R. M. LANDIS, ROBERT S. McCOMBS, CHARLES M. MONTGOMERY, J. J. ROBRECHT, CLARENCE D. SMITH, Philadelphia.

Camp McClellan, Anniston, Ala., for the purpose of conducting examinations in his specialty and upon completion of this duty to return to his home, Dr. THOMAS C. SIMONTON, Pittsburgh.

To Camp Sevier, Greenville, S. C., for duty as member of the tuberculosis examining board, Dr. G. FRANKLIN BELL, Williamsport.

To Fort Benjamin Harrison, for instruction in tuberculosis examination, Drs. H. J. HARTZ, E. S. VANDER-SLICE, Philadelphia.

To Walter Reed General Hospital, Takoma Park, D. C., Drs. JOHN W. ELLENBERGER, Harrisburg; JACOB ROSENBLOOM, Pittsburgh.

To his home and report by wire to Surgeon-General of the Army upon his arrival, from Camp Wadsworth, Spartanburg, S. C., Dr. WILLIAM C. WALLACE, Ingram.

Rhode Island

To Camp Hancock, Augusta, Ga., from Walter Reed General Hospital, Takoma Park, D. C., for duty as a member of the tuberculosis examining board, Dr. JAY PERKINS, Providence.

Tennessee

To Fort Benjamin Harrison for instruction in tuberculosis examination, Dr. H. P. COILE, Knoxville.

To his home from duty with the Tennessee National Guard, Dr. J. J. NEELY, Memphis.

Texas

To his home from duty at Leon Springs, Tex., Dr. ROBERT G. McCORKLE, San Antonio.

Virginia

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examination, Dr. FRANK G. SIMMONS, Richmond.

Washington

To Camp Lewis, American Lake, Wash., for duty as member of tuberculosis examining board, Drs. E. R. AHLMAN, Hoquiam; A. B. McLEAN, Pe Ell.

Wisconsin

To Camp MacArthur, Waco, Tex., *32d Division,* for duty as member of tuberculosis examining board, from Camp Robinson, Sparta, Wis., Drs. W. B. FORD, J. D. MADISON, L. G. SYKES, J. G. TAYLOR, Milwaukee.

To Camp Sheridan, Montgomery, Ala., for duty as member of tuberculosis examining board, Dr. THOMAS MILLER, Oconomowoc.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; *such as relate to society activities, new hospitals, education, public health, etc.*)

ARIZONA

New Members of Board of Examiners.—Dr. Coit Hughes, Phoenix, has been appointed a member of the State Board of Medical Examiners to succeed Dr. Ira E. Huffman, Tucson; Dr. Albert L. Gustetter, Nogales, to succeed Charles T. Sturgeon, Globe, and David L. Conner, Phoenix, to succeed Dr. George W. Martin, Tucson.

Personal.—Dr. Franklin C. Norman, Hayden, has been appointed superintendent of the State Hospital for the Insane, Phoenix, succeeding Dr. John R. Walls, Tucson, resigned. ——Dr. J. Bernard Nelson, Mesa, has been appointed superintendent of public health of the state, succeeding Dr. Robert N. Looney, Prescott.——Dr. Allen H. Williams has succeeded the late Dr. Harry J. James as medical director of St. Luke's Home for Tuberculosis, Phoenix. Dr. Marian Walker Williams, wife of Dr. Allen Williams, has been made assistant director.

ARKANSAS

Venereal Clinic.—A free clinic for venereal diseases has been opened in the Medical School of the University of Arkansas, Little Rock, by Drs. Sterling P. Bond, Claude C. Pierce, U. S. P. H. S., Augustus C. Shipp and Mr. H. H. Railey. The clinic is open each day from 12:30 to 2.

FLORIDA

Hospital Site.—Drs. J. Edward Smoak and Mack R. Winton have purchased, for $10,000, a site for a hospital, 32 by 110 feet, at Bravard and Grand Central avenues, Tampa.

Antituberculosis Campaign.—Plans for a general campaign throughout the state were discussed at the meeting of the executive committee of the Florida Antituberculosis Association, September 19. Dr. Carrol H. Frink, secretary of the association, presided.

Trachoma in Florida.—A number of cases of trachoma have appeared in Riverside and other sections of the state, and Dr. William H. Cox, Brooksville, state health officer, has requested the Surgeon-General of the United States Public Health Service to detail an officer to aid in combating the disease. Dr. John McMullen, U. S. P. H. S., has been detailed to this duty.

ILLINOIS

Diphtheria in Edwardsville.—Dr. John J. McShane of the state board of health is investigating conditions in Edwardsville where twenty-five cases of diphtheria have occurred, with one death.

To Aid Tuberculosis Work in France.—Miss Elizabeth Wallace left Chicago, October 15, for France as a member of the Tuberculosis Commission headed by Dr. Livingston Farrand, president of the University of Colorado, and secretary of the National Association for the Study and Prevention of Tuberculosis.

Personal.—Dr. Frank Billings arrived in Chicago, October 19, after several months spent in Russia as chairman of the American Red Cross Commission.——The wife of Dr. H. Wernicke Gentles, Chicago, disappeared from her home, October 20, while suffering from melancholia, and her body was found in Lake Michigan the next day.——Dr. James A. Day, Jacksonville, announces his removal to Springfield.

Tuberculosis Clinics.—Two special clinics were given, October 12 and 13, at the Chicago Municipal Tuberculosis Sanatorium by Dr. H. Kennon Dunham, Cincinnati, who spoke on "The Interpretation of Roentgen-Ray Photographs of the Lungs in Tuberculosis," and by Dr. William Snow Miller of the University of Wisconsin, Madison, who spoke on "The Anatomy of the Lungs." The clinics were attended by present and former members of the staff of the sanatorium and its dispensary, and by the class of the Chicago School of Military Roentgenology.

Chicago

Canadian Surgeon-General to Address Institute of Medicine.—Surgeon-General Fotheringham of the Canadian Army will address the Institute of Medicine of Chicago on Friday, Nov. 2, 1917, in the LaSalle Hotel, at 8 p. m. Surgeon-General Fotheringham went to France in 1914, with the first Canadian contingent, and was in active service in France with the Canadian forces until April of this year, when he was promoted to the Department of Militia and Defense, Ottawa, as Surgeon-General of Canada.

The subject of his address will be "Modern Methods in War from a Medical Standpoint."

IOWA

Personal.—Dr. Arthur A. Schmidt, Postville, while driving his automobile over a grade crossing near Postville, was struck by a train. The automobile was destroyed, and Dr. Schmidt sustained a broken arm, fracture of the nose and internal injuries.

MARYLAND

Personal.—Dr. Archibald C. Harrison, Baltimore, director of the University of Maryland Base Hospital Unit, was operated on at St. Joseph's Hospital, October 7, for disease of the abdomen and is reported to be doing well.——Dr. George M. Fischer, Spring Gap, has been appointed justice of peace for Allegany County.

New Tuberculosis Hospitals Proposed.—Dr. John D. Blake, health commissioner of Baltimore, in a recent report of the heads of the department, mentioned the great number of deaths due to tuberculosis among the negroes in Baltimore, and attributed this to the fact that there is no hospital at which they can be treated, and they are carrying the disease into the homes of the white people. Mayor Preston stated that he contemplated building two hospitals in the near future, one for whites and another for colored persons.

Meetings.—The semiannual meeting of the Medical and Chirurgical Faculty of Maryland will be held on October 31 at Havre de Grace. Dr. Purnell F. Sappington, Bel Air, president of the Harford County Medical Society, will deliver the address of welcome. Dr. Guy Steele, president of the Medical and Chirurgical Faculty, will speak on "Pellagra in Maryland." Dr. Herbert Harlan of Baltimore will read a paper on "Proposed Changes in the Medical Practice Act," and Dr. Arthur P. Herring, secretary of the state lunacy commission, will address the meeting on "Psychiatric Problems of the War."

Hospital rates Increased.—Representatives from all the hospitals in Baltimore appeared before the board of estimates recently and showed that it is impossible to treat city patients sent to the hospitals by supervisors of city charities at the existing rate of 62½ cents a patient per day, because of the high cost of food, medicine, gauze and coal. The city was asked to pay the hospitals next year $1.75 a patient a day. Dr. Charles O'Donovan, who represented St. Joseph's Hospital, said that it cost that hospital to maintain and treat a patient sent by the city $1.55½ a day. St. Joseph's from Oct. 1, 1916, to Oct. 1, 1917, has spent on city patients $56,000, and 1,723 patients were sent to the hospital by the city authorities for treatment during that time. Dr. Alexius McGlannan, who represented St. Agnes' and Mercy hospitals, stated that it costs those hospitals $1.50 a day to maintain and treat a patient. Dr. Randolph Winslow of the Maryland General Hospital placed the cost of city patients in that hospital from $1.50 to $1.60 a day. Similar statements were made by Dr. G. Milton Linthicum of the University Hospital; Dr. Smith of Mercy Hospital, and Dr. Albert T. Chambers of the Franklin Square Hospital. Dr. Linthicum pointed out to the board that the city officials should take good care of the hospitals so that the poor patients sent for treatment might be given proper care. It was hinted by all the physicians present that unless the city pays more money for the poor patients sent for treatment, the work will have to be curtailed or stopped altogether.

MINNESOTA

Diphtheria at State Hospital.—The epidemic of diphtheria which began about July 15, at the State Hospital for the Insane, Rochester, has now subsided. There were about 250 cases, with no deaths.

Southern Minnesota Physicians to Meet.—The annual meeting of the Southern Minnesota Physicians' Association will be held at Mankato, November 26 and 27, under the presidency of Dr. Aaron F. Schmitt, Mankato.

Good Work at Sanatorium.—The state board of control received a report from the State Sanatorium for Tuberculosis, Owatonna, which says that thirty-five patients had been discharged, cured, from the institution during September. Of these, thirty have gained an average of 40½ pounds during their stay at the institution.

Personal.—Prof. C. C. Palmer of the College of Agriculture of the State University has been appointed head of the department of bacteriology, physiology and hygiene, at the Delaware College, Newark, Del.——Dr. Frederick M. Allen of the Rockefeller Institution, New York, delivered an address for the University of Minnesota Medical Society at Minneapolis, October 8, on "Diabetes."——Dr. Charles E. Smith has resigned as medical inspector in the St. Paul Health Department, to accept a position with the state department of health. ——Dr. Harry G. Irvine, Minneapolis, has been appointed director of the State Bureau of Venereal Diseases of California.

New State Officers.—At the annual meeting of the Minnesota State Medical Association, held in St. Paul, October 10-12, under the presidency of Dr. Harper M. Workman, Tracy, the following officers were elected: president, Dr. Arthur J. Gillette, St. Paul; vice presidents, Drs. Ora C. Strickler, New Ulm; Edward H. Frost, Willmar, and Matthew J. Lynch, Minneapolis; secretary, Dr. Thomas S. McDavitt, St. Paul (reelected); treasurer, Dr. Earle R. Hare, Minneapolis; councillor, for the sixth district, Dr. Frank R. Weiser, Windom, and for the eighth district, Dr. Hugh F. McGaughey, Winona; delegate to the American Medical Association, Dr. George D. Head, Minneapolis, and alternate, Dr. John W. Ball, Minneapolis. Resolutions were adopted by the association urging the establishment of a safety zone around Fort Snelling, and the enactment of laws for the control of venereal diseases by the state board of health.

MISSOURI

Personal.—Dr. Wilson J. Ferguson, Sedalia, recently appointed a member of the state board of health, was elected vice president of the board, September 29.——Dr. Woodson Moss, Columbia, has retired from the faculty of the University of Missouri, after a service of forty-three years.

St. Louis

Emergency Unit Organized.—A medical unit of thirty physicians and surgeons has been organized by the St. Louis Medical Society to cooperate with the home guard regiments for service in case of emergencies, such as the recent race roits in East St. Louis, Ill.

Cleared of Disloyalty Charge.—The St. Louis Medical Society, at its meeting, September 23, exonerated Dr. R. Emmet Kane of a charge of disloyalty, made by several members of the auxiliary Medical Defense Committee, and extends an honorable vote of thanks to Dr. Kane for his "untiring and patriotic medical work since the war began."

Personal.—Dr. Charles W. Shery has been appointed city bacteriologist and pathologist, succeeding Dr. Frederick A. Baldwin, resigned.——Dr. George W. Flynn sustained severe cuts and bruises when a city ambulance collided with his automobile, October 5.——Dr. Aden C. Vickrey was found unconscious beside his automobile, September 22, with a fracture of the base of the skull, and is under treatment in the Alexian Brothers Hospital.

Registration Subcommittee Appointed.—The Auxiliary Medical Defense Committee of St. Louis has appointed a subcommittee for the registration of medical practice, consisting of Drs. Willard Bartlett, N. M. Freund and G. A. Jordan. The committee has formulated plans to insure that competent physicians will take case of the practice of any medical men volunteering for Army and Navy service with the provision that from one third to one half of any fees collected should be turned over to the family, or deposited to the physician's credit.

MONTANA

Hygienic Laboratory Opened.—The hygienic laboratory of the state board of health at the state capitol, Helena, was opened, October 15, under the charge of Dr. Arthur H. McCray.

State Board Election.—At the October meeting of the State Board of Medical Examiners in Helena, Dr. Sidney A. Cooney, Helena, took his seat as a member of the board, and was elected secretary, succeeding Dr. William C. Riddell, resigned. Dr. Patrick H. McCarthy, Butte, was elected president.

Hospital News.—Work will be commenced soon on the new Deaconess Hospital, Billings. The necessary fund of $10,000 has been oversubscribed, and a 10-acre site has been secured between Lewiston and Alderson avenues; the contract has been awarded.——An addition has been made to the Park Hospital, Livingston, at a cost of $20,000. This addition increases the capacity of the hospital by twenty rooms, and will accommodate fifty patients.

NEW MEXICO

Personal.—Dr. Miguel F. Des Marais, superintendent of the New Mexico Hospital for the Insane, East Las Vegas, has resigned.——Dr. Samuel H. Eckles, Miami, Ariz., has succeeded Dr. Edward W. Hooper, Silver City, resigned, as physician of Grant County. Dr. Eckles has been ordered to report for duty in New York City, November 15, and expects to be sent abroad.——Dr. LeRoy S. Peters has disposed of his interest in the Albuquerque Sanatorium, and has been appointed associate medical director of St. Joseph's Sanatorium, Albuquerque.

State Society Meeting.—The annual meeting of the New Mexico Medical Society was held at Las Cruces the first week in October, and the following officers were elected: president, Dr. John W. Kinsinger, Roswell; president elect, Dr. Charles A. Frank, Albuquerque; vice presidents, Drs. Hugh V. Fall, Roswell; Chester Russell, Artesia, and Howard M. Cornell, Las Cruces; secretary, Dr. Robert E. McBride, Las Cruces; treasurer, Dr. Frank E. Tull, Albuquerque; delegate to the American Medical Association, Dr. Harry A. Miller, Clovis; alternate, Dr. Robert E. McBride, Las Cruces, and councillors, first district, Dr. Robert L. Bradley, Roswell; second district, Dr. Harry A. Miller, Clovis; third district, Dr. Walter E. Kaser, Las Vegas; fourth district, Dr. Charles H. Churchill, Madrid; fifth district, Dr. George S. McLandress, Albuquerque, and sixth district, Dr. Troy C. Sexton, Las Cruces. Albuquerque was selected as the next place of meeting.

NEW YORK

Centennial of Medical Society.—The one hundredth anniversary of the Steuben County Medical Society was celebrated at Bath, October 16. The presidential address on "Our Centennial Anniversary," was delivered by Dr. Henry J. Wynkoop, Bath.

District Society Meetings.—The Sixth District Branch of the Medical Society of the State of New York held its eleventh annual meeting at Glenn Springs, October 9, and elected the following officers: president, Dr. R. Paul Higgins, Cortland; vice presidents, Drs. John M. Quirk, Montour Falls, and Leon M. Kysor, Hornell; secretary, Dr. Charles H. Gallagher, Ithaca, and treasurer, Dr. Stuart B. Blakely, Binghamton.——At the eleventh annual meeting of the Seventh District Branch of the Medical Society of the State of New York, held in Canandaigua, September 27, Dr. John Pratt, Manchester, was elected president; Drs. J. Polk Delaney, Geneva, and Festus M. Chaffee, Middlesex, were elected vice presidents; Dr. John F. Myers, Sodus, was elected secretary, and Dr. Alfred W. Armstrong, Canandaigua, treasurer.

New Adjustment of Medical Claims Under Compensation Act.—The State Industrial Commission has issued a statement announcing changes in procedure on claims for medical compensation to injured employees. Hereafter all claims for medical services must be made direct to the commission, which will pass upon the claims, make awards covering medical services in amounts that may be deemed reasonable, and issue an order directing payment which, if not obeyed, may be filed in the county clerk's office and become a judgment of the Supreme Court. This change has been made as the result of a recent decision of Justice Benedict in the Appellate Division of the Supreme Court, which has established in effect that no action can be maintained in the courts for medical services, but that the matter must be determined by the commission, which establishes both the reasonableness of the amount and the location of the liability. If the employee provides his own medical attention he will be obliged to meet the expense, and the doctor may have a lien on the compensation to be paid.

New York City

Case of Anthrax at Bellevue.—A victim of anthrax died recently in Bellevue Hospital. This was the sixth case of anthrax which has been cared for at Bellevue within a brief period. Among the six cases there was *one* recovery.

Harvey Lecture.—The first lecture of the Harvey Society series delivered at the New York Academy of Medicine, October 27, by Prof. W. T. Porter of Harvard University, took up the question of "Shock; Observations at the Front."

New Brooklyn Hospital.—The cornerstone of the new hospital building which is to replace the Cumberland Street Hospital was laid on the afternoon of October 18, by Mayor Mitchell and Comptroller Prendergast. The new structure is to cost $800,000, and the contract calls for its completion within a year.

Lectures on Skin Diseases.—The governors of the New York Skin and Cancer Hospital announce that Dr. L. Duncan Bulkley, assisted by the attending staff, will give the nineteenth series of clinical lectures on diseases of the skin in the outpatient hall of the hospital on Wednesday afternoons, beginning November 7, at 4:15 o'clock.

Anniversary Dinner of Pharmacy College.—The Brooklyn College of Pharmacy will celebrate its twenty-fifth anniversary by a dinner to be given at the Elk's Club, Brooklyn, November 21. The dinner is in honor of two members of the faculty, Profs. D. C. Mangan, and H. D. Schimpf, who have completed twenty-five years of continuous service.

Ambulance Wrecked by Trolley.—As the result of a collision with a trolley car at Forty-Sixth Street and Fifth Avenue, Brooklyn, on October 14, a Norwegian Hospital ambulance was wrecked. The ambulance surgeon, Dr. John M. Tamraz, and the driver sustained minor injuries. No patient was in the ambulance at the time of the accident.

Psychiatric Changes.—On October 1, the State Hospital Commission appointed Dr. Kirby, formerly director of clinical psychiatry at the Manhattan State Hospital and recently medical inspector of the New York state hospitals, director of the Psychiatric Institute, Ward's Island. Dr. Kirby has also been appointed professor of psychiatry at the Cornell University Medical College, succeeding Dr. August Hoch, who has resigned and will remove to California.

Free Clinic for Speech Defects.—Financed by public-spirited citizens of New York, a New York Clinic for Speech Defects has been incorporated, with Dr. Herbert L. Wheeler as president. The clinic will be open this month, under the medical direction of Dr. James Sonnett Greene, and among the members of the consulting board are Drs. Abraham Jacobi, John MacKenty, Phillip D. Kerrison and George M. Parker. In addition to the task of restoring the former powers of speech to soldiers rendered mute by shellshot, the board will develop the treatment of inherited or acquired speech defects.

Hospitals Face Large Deficit.—According to the report of the United Hospital Fund for the fiscal year ending September 30, forty-six of the large hospitals that share in this fund are facing a deficit that will total over $1,000,000. Estimates compiled by the fund show that in 1917 the expenses of these forty-six prominent hospitals were $6,862,359, and their total income only $6,371,832, leaving a deficit of over $490,000. For the year just ended there was a further deficit of $700,000, and several of the large hospitals have not yet sent in full returns but state that their deficits are the largest in their history. The New York Hospital has reported a deficit of $96,812; the German Hospital, $52,724; the Volunteer, $40,377; the Nursery and Child, $60,539; Polyclinic, $21,430; Lying-In, $19,416.

Medical Experiences at Camp Upton.—The Base Hospital, Seventy-Seventh Division, National Army, Camp Upton, Long Island, furnished the program of the Section on Medicine of the New York Academy of Medicine at the regular meeting of October 16. The program included a description of the complicated administration of an army base hospital by Major J. D. Whitham. A paper on the "First Psychiatric Experiences in the National Army" was read by Dr. Aaron J. Rosanoff which brought out the fact that the examination of recruits has shown a much larger number of individuals with psychopathic conditions than has been hitherto recognized, and that many such cases that might pass under a doctor's care in civil life without their mental condition being diagnosed were sifted out by the routine examinations and longer periods of observation in vogue in the Army. Dr. Abraham Zingher gave a talk on the "Schick Reaction in Recruits of the National Army," in which he stated that out of several thousand men subjected to the Schick test 85 per cent. were found immune to diphtheria. The application of the Schick test would leave only about 15 per cent. of the troops to be watched for diphtheria, would materially assist in making a diagnosis of diphtheria in doubtful cases, and would result in a great saving of diphtheria antitoxin. Dr. Russell L. Cecil spoke on the "Reactions Produced by Prophylactic Inoculation with the So-Called Triple Typhoid Vaccine." In his experience only an average of one man in every 1,000 inoculated suffered from a reaction [illegible] ntly severe [illegible] send him to the hospital, and even then his stay in the hospital was very short, frequently only twenty-four hours. He found the reactions from the use of the triple vaccines no more frequent or severe than those from the typhoid vaccine alone.

PENNSYLVANIA

Philadelphia

Veterinarians Mobilize.—Dr. Clarence J. Marshall, state veterinarian and professor of veterinary medicine at the University of Pennsylvania, has gone to Washington to supervise the mobilization of the government's veterinary service. There are 12,000 experts and enlisted men in force.

Jefferson Unit in New Quarters.—The Jefferson Base Hospital Unit No. 38, under Major John S. Lambie, has entered new quarters at the Second Regiment Armory. Here Major William M. L. Coplin and Capt. Frank H. Hustead have their offices. The 152 men of the personnel of the unit will receive hospital training in the city institutions, and learn cooking in the hotels.

Medical Club Nominations.—At the meeting of the Medical Club of Philadelphia, October 19, the following nominations were made: president, Drs. Albert P. Brubaker and William D. Robinson; first vice president, Dr. G. Oram Ring; second vice president, Dr. Alexander McAllister; secretary, Dr. William S. Wray; treasurer, Dr. Lewis H. Adler, Jr., and governor, Dr. McCluney Radcliffe.

Hospital Opens New Office.—The Pennsylvania Committee (Medical Section) of the Council of National Defense has opened its office in City Hall. An information bureau has been established with a view to supplying institutional vacancies as they may occur with medical men, in the capacity either of interns or of visiting physicians. Vacancies in private practice will also be filled whenever possible.

Personals.—Dr. D. Randall MacCarroll has been elected to fill the vacancy on the obstetric staff of the Maternity Hospital caused by the resignation of Dr. Charles C. Norris.——Major S. MacCuen Smith has been relieved from active duty at Camp Meade, and has returned to Philadelphia.——Dr. D. Gregg Metheny has returned to Philadelphia from Newport, R. I., where he has been in the service of the United States Navy. Dr. Metheny has been temporarily detached from active service in order to resume his duties at the Jefferson Medical College.——Dr. Frank C. Hammond, who is connected with the Samaritan Hospital, has been appointed a member of the board of health, to serve during the absence in France of Dr. Alexander C. Abbott, who entered the Army Medical Corps several months ago.——Dr. Hubley R. Owen, chief of police surgeons, who enlisted as first lieutenant in the Jefferson Hospital unit, which will leave for France, the early part of 1918, was granted an indefinite leave of absence. No successor has been chosen for Dr. Owen.——Dr. Clement A. Fogerty, who left for England early in August, has been promoted to the position of assistant surgeon in the Southwark Hospital, London.——Dr. Mary Ridegway, who was severely burned when a lamp exploded and threw burning oil on her face and arms, is in a serious condition.

VERMONT

Bennington County Physicians Elect Officers.—At the annual meeting of the Bennington County Medical Society, held at Manchester Center, Dr. John I. Cochran, East Dorset, was elected president; Dr. James L. Lovejoy, Manchester Depot, vice president, and Dr. L. H. Ross, Bennington, secretary-treasurer. At this meeting Dr. Schuyler W. Hammond of Rutland discussed the "Allen Treatment for Diabetes Mellitus."

New State Officers.—The Vermont State Medical Society held its one hundred and fourth annual meeting in Barre, October 11 and 12, under the presidency of Dr. Clarence H. Beecher, Burlington, and elected the following officers: president, Dr. Clayton W. Bartlett, Bennington; vice president, Dr. William Lindsay, Montpelier; secretary, Dr. William G. Ricker, St. Johnsbury (reelected); treasurer, Dr. Edward H. Martin, Middlebury; auditor, Dr. Waldo J. Upton, St. Albans, and councilor for first district, Dr. James N. Jenne, Burlington, and for the second district, Dr. Frank E. Farmer, St. Johnsbury. Burlington was selected as the next place of meeting.

TEXAS

Quarantine Station.—A committee representing Beaumont, Port Arthur and Sabine has gone to Austin to endeavor to secure an additional appropriation of $15,000 from the legislature for the construction of the proposed state quarantine station at Sabine.

Personal.—Dr. Albert H. Braden, Beaumont, has been appointed chief director for the International Board of the Rockefeller Foundation, and will be in charge of the health and sanitary survey to be conducted throughout the state.——Dr. William E. Howard, Dallas, has been elected surgeon of the United Spanish War Veterans.

New Officers.—At the semiannual meeting of the South Texas District Medical Association, held in Beaumont, October 12, Dr. James E. Thompson, Galveston, was elected president; Dr. Wil T. Williams, Beaumont, vice president, and Dr. Albert H. Braden, Beaumont, secretary-treasurer. Houston was selected as the next place of meeting.——At the annual meeting of the Dallas Association for the Study and Prevention of Tuberculosis, October 10, Dr. Robert B. McBride was elected president, and Dr. Raleigh W. Baird, vice president.——At the fifth annual meeting of the Texas Surgical Society, held in Houston, October 8 and 9, the following officers were elected: president, Dr. W. Burton Thorning; vice presidents, Drs. Frank Paschel, San Antonio, and Andrew B. Small, Dallas; secretary, Dr. Frank L. Binds, Houston; treasurer, Dr. J. B. Smoot, Dallas, and recorder, Dr. Judson L. Taylor, Houston. Waco was selected as the next place of meeting.

CANADA

Medical Officers Decorated.—The following Canadian Medical officers have been invested by King George with the military cross: Capts. Walter Lawson, Hugh Mustard and Frederick Pees.

Hospital News.—Major D. W. Whitton is appointed to command a hospital ship.——Lieut.-Col. E. J. Williams is appointed to command the Canadian hospital at Hastings, England, succeeding Lieut.-Col. Hugh E. Munroe.——The accommodation at Camp Hill Military Hospital, Halifax, N. S., is to be increased by the addition of two new wings. It will then have a capacity of 600 beds.——The Military Annex of the Vancouver General Hospital was formally opened, September 15. The buildings has accommodation for 300 patients, there being eight wards, each containing from thirty-four to forty beds.

Army Medical News.—Temporary Brig.-Gen. Auckland Campbell Geddes, M.D., Montreal, has had conferred on him the honor of Knight Commander of the Order of the Bath. Dr. Geddes is director of recruiting in England. Sir Auckland C. Geddes had occupied the chair of anatomy in McGill University a year when war broke out. He is a brother of Sir Erie Geddes, First Lord of the Admiralty.——The Military Cross has been awarded the following officers of the Canadian Army Medical Corps: Capts. Ronald Hugh Macdonald, Winnipeg; Robert James Manion, Fort William, Ont; Archibald McCausland, and Capt. Ashley C. Cooper Johnston, Lundbreck, Alberta.

Medical Boards in Ontario.—Nine medical boards will be stationed in the Province of Ontario. Of these, three will be located in London, one each in Windsor, Sarnia, Harriston, Guelph and Brantford, and there will be one traveling board. These boards will examine the drafted men, and a central board will be located at Ottawa to review the cases passed on by the local boards.——A second army medical board has been established in Windsor, Ont., composed of Captain Walsh, Guelph; Lieutenants Ross, London and Brisson, Tilbury. The first board is composed of Capts. W. Gallow, Goderich; G. Murray Flock, and Major W. A. Burgess, Windsor.

Personal.—Dr. William D. Brydone-Jack, Vancouver, B. C., has been appointed superintending engineer of the public works department for the provinces of Manitoba and Saskatchewan.——Dr. Arthur C. Nash, Vancouver, has been appointed resident physician and medical officer of health at Massett, Queen Charlotte Islands.——Major Andrew MacPhail, A. D. M. S., London, England, is returning to his home in Montreal. Dr. MacPhail has been overseas two and one-half years, and will be assigned to duty in Canada. He is editor of the *Canadian Medical Association Journal*. Major John S. Jenkins, Charlottetown, P. E. I., succeeds him.——Lieut.-Col. Henry R. Casgrain, Windsor, Ont., who has been in command of Bushey Park Red Cross Hospital, England, has been appointed to command the French-Canadian Hospital at St. Cloud, near Paris, France.

Lieutenant-Colonel Lebel, who was in command, will probably return to Canada. Lieutenant-Colonel McQueen, late of the Fifth Field Ambulance, will succeed Colonel Casgrain in command of Bushey Park.

GENERAL

Southern Gastro-Enterologists to Meet.—The next annual meeting of the Southern Gastro-Enterological Association will be held at Memphis, Tenn., November 12, under the presidency of Dr. James C. Johnson, Atlanta, Ga.

Tuberculosis Foes Elect Officers.—At the closing session of the fifth Mississippi Valley Conference on Tuberculosis, held in St. Paul, October 10, Dr. Alfred Henry, Indianapolis, was elected president; Dr. Walter J. Marcley, Minneapolis, vice president, and Mr. James Minnick, Chicago, was reelected secretary.

Anesthetists Elect Officers.—At the annual meeting of the Interstate Annual Meeting of Anesthetists, held in Toledo, Ohio, October 11, Dr. Elmer J. McKesson, Toledo, was elected president; Dr. John J. Buettner, Syracuse, N. Y., vice president, and Dr. F. Hoeffer McMechan, Avon Lake, Ohio, secretary-treasurer.

National Board Examination.—The third examination of the National Board of Medical Examiners was held in Chicago, October 10-18. Twenty-eight candidates were examined, of whom twenty-two passed. Arrangements have already been made for another examination, which will be held at the Bellevue Hospital, New York City, Jan. 9-17, 1918.

New Mississippi Valley Officers.—At the annual meeting of the Mississippi Valley Medical Association, held in Toledo, Ohio, October 9 to 11, Dr. Francis M. Pottenger, Monrovia, Calif., was elected president; Dr. Frank B. Wynn, Indianapolis, vice president; Dr. Henry Enos Tuley, Louisville, secretary (reelected); Dr. Samuel C. Stanton, Chicago, treasurer (reelected). Louisville, Ky., was selected as the next place of meeting.

Bequests and Donations.—The following bequests and donations have recently been announced:

Columbia University, Mt. Sinai Hospital, United Hebrew Charities, and Montefiore Home, each $5,000; Home for Aged and Infirm Hebrews, St. John's Guild and Society for Improving the Condition of the Poor, New York City, each $2,500 by the will of Isaac Newton Seligman.

Johns Hopkins University, Baltimore, and the Charity Organization of New York, each $100,000, and one half of the residuary legacies of four beneficiaries by the will of Jennie Gillender.

Red Cross First Aid Trip.—The Central Safety Committee of the Missouri Pacific Railway Company has arranged with the American Red Cross Society for the Red Cross First Aid Car No. 2 in which Dr. Eric S. Green, Washington, D. C., is to make a trip along its lines for the purpose of instructing employees and their families in first aid for the injured and the means of preventing accidents. Dr. Green will deliver lectures and make demonstrations. The trip began October 9, at St. Louis, and will end December 23, at Texarkana, Ark.

Southwestern Physicians Elect Officers.—The Medical Association of the Southwest held its annual meeting in Kansas City, October 15 to 17, under the presidency of Dr. Everett S. Lain, Oklahoma City, and elected the following officers: president, Dr. Edward H. Martin, Hot Springs, Ark.; vice presidents, Drs. C. Lester Hall, Kansas City, Mo.; James M. Bonham, Hobart, Okla.; Matthew M. Smith, Dallas, Texas, and Ernest F. Day, Arkansas City, Kan., and secretary, Dr. Fred H. Clark, El Reno, Okla. (reelected). The next meeting will be held in Dallas, Texas.

Prevention of Infant Mortality.—At the annual meeting of the American Association for the Prevention of Infant Mortality, held in Richmond, Va., October 15 to 17, under the presidency of Dr. William C. Woodward, Washington, D. C., the following officers were elected: president, Mrs. William Lowell Putnam, Boston; president-elect, Dr. Philip Van Ingen, New York City; vice presidents, Drs. Isaac A Abt, Chicago, and Watson S. Rankin, Raleigh, N. C.; secretary, Dr. Henry F. Helmholz, Chicago; treasurer Mrs. Austin McLanahan, Baltimore, and executive secretary, Miss Gertrude B. Knipp, Baltimore.

New Officers for Railway Surgeons' Association.—At the fourteenth annual meeting of the American Association of Railway Surgeons, held in Chicago, October 17 to 19, under the presidency of Dr. William B. Malone, Memphis, Tenn., the following officers were elected: president, Dr. Edwin S. McDonald, Cameron, Mo.; vice presidents, Drs. Jacob Hinden, Strong, Kan.; Francis L. Reder, St. Louis, and Robert McConaughy, York, Neb.; secretary, Dr. Louis J. Mitchell, Chicago (reelected for the twentieth year); treasurer, Dr. Henry B. Jennings, Council Bluffs, Iowa (reelected for the tenth year), and members of the executive board, Drs. Guy G. Dowdall, Chicago, and Joseph R. Hollowbush, Rock Island, Ill. Chicago was selected as the next place of meeting.

Hospital Standardization.—The most important event connected with the recent meeting of the American College of Surgeons and the Clinical Congress of Surgeons was the meeting devoted to hospital standardization. A large number of papers were presented covering the whole subject of hospitals, hospital standardization and the efficiency of hospital work, as well as, and more important, the control of operative procedures. As an outcome of the deliberations it was decided to make an inspection of the various hospitals in the early future, and a committee was appointed to report on the method of procedure. This committee was to report on Friday. It consisted of Dr. E. A. Codman, Boston; Dr. A. J. Ochsner, Chicago, and Mr. John G. Bowman, the director of the college. From the Carnegie Foundation a fund of $50,000 has been received with which to carry on this investigation. A complete report will appear in Society Proceedings next week.

FOREIGN

Peruvian Commission to the United States.—The Peruvian Medical Commission, which will tour the United States inspecting medical schools and hospitals, began its work in Baltimore, October 14, and from there went to Philadelphia and New York. The commission is composed of Prof. Dr. Guillermo Gastaneta and Drs. E. Campodonico and R. Asplazu. The object of the commission is to secure information for the reorganization of the medical schools of Peru after American standards.

Annual Meeting of the Internists of Italy.—It is announced that the twenty-sixth annual meeting of the Italian Societa di medicina interna is to be held during the latter part of October in some city near the firing line. The themes appointed for discussion are camp jaundice, malaria, soldier's heart, kidney disease and tuberculosis in their relations to the military service, and the sympathetic syndromes in soldiers. The secretary of the congress is Prof. A. Berti of Padua.

Deaths in the Profession Abroad.—**R. Oppenheim,** one of the editors of the *Progrès médical,* chief of an ambulance at Vichy, and author of numerous works on the suprarenals and shell shock, aged 43.——**A. Stahl,** at one time president of the Porto Rico Medical Association, and dean of the profession in Porto Rico, aged 79.——**R. del V. Rodriguez,** Porto Rico.——**F. Moser,** a prominent physician in Switzerland; on account of the absence on military duty of the other physicians in his vicinity, he disregarded pneumonia in himself to attend to urgent calls, aged 53.

Annual Meeting of the Porto Rico Medical Society.—This meeting is to be held at San Juan, Porto Rico, December 22 and 23. One evening is to be devoted to a public lecture on the care of infants. The president of the society is Dr. G. Villaronga of Ponce, and the secretary, Dr. A. R. Laugier of San Juan. The bulletin published in Spanish by the society is a fine monthly of about fifty or sixty pages. The leading article is on the hygiene of the home, the writer, Dr. Atiles, urging his medical hearers, among other points, to make every effort to combat certain superstitions still rife in Porto Rico, such as that cobwebs should never be disturbed or bad luck will follow.

LONDON LETTER

London, Oct. 2, 1917.

The War

THE SHORTAGE OF MEDICAL STUDENTS

The effect of medical students' joining the army either as combatants or as members of the medical corps in the early part of the war has been described in The Journal. The position that has now been reached is well summarized in a memorandum submitted to the government by the committee of reference of the Royal Colleges of Physicians and Surgeons (a body appointed to deal with the problem of medical recruiting). The annual average wastage of physicians in normal times preceding the war owing to death, retirement from practice, or permanent incapacity was about 900. The average number of physicians added to the Medical Register annually was about 1,100. There is now a large abnormal wastage in physicians arising directly out of the war. The supply of physicians to meet the needs of the civil population has been reduced to the lowest number *consistent with safety*, and there is practically no reserve to make good the normal annual wastage from deaths or incapacity. All new additions to the ranks of the medical profession by the qualification of students are at once *requisitioned by* the army and are not available, therefore, to make good the *normal* average wastage of physicians required for the civil population. The number of fifth-year men students due to qualify in 1917 *(922) is only barely* sufficient to make good the normal wastage in the profession of that year. The number of fourth-year men students due to qualify during 1918 was 1,078. This number has been reduced since these statistics were obtained, by some of the men's having accepted commissions as probationary surgeons in the navy, and the number who will actually qualify in 1918 is *probably only* just sufficient to meet the normal annual wastage, that is, about 900. The number of third-year *men students* due *to* qualify during 1919 is only 519, and if the greater number of these qualify in due course they will little more than meet half the *normal wastage. There were 783 second-year men* students due to qualify in 1920, and 1,432 first-year men students due to qualify in 1921. *But since these figures* were compiled, the situation has undergone considerable alteration because medical *students who were rejected* as *not fit for* general military service have been called up on the introduction of a series of grades of physical fitness under which men of inferior physique are accepted for military work of a kind suitable to them, and also because first-year students as *they have reached the age of* 18 have been called up. The number of first-year students due to qualify in 1921 is therefore probably at present not more than half the figure given above, and the number of second-year students is less, though probably not to quite the same extent. The average number of medical students registered in times preceding the war was about 1,800 *a year.* The shortage, *therefore, of first*, second and third-year students, as compared with normal times, is a reduction by about two thirds. *In regard* to probationer surgeons in the navy, the committee recommends that these (*who for the most part are fourth or fifth-year men) should* be demobilized *after six* months of service, for otherwise their qualification is being indefinitely postponed. In order to enable this to be done, it is necessary that a supply of junior students as they pass their second *medical* examination should be available, and some of these could become surgeon probationers, and thus make it possible to demobilize those who have served six months. The Central Medical War Committee therefore strongly recommends that medical students now serving in the navy or army as officers or privates should be demobilized to continue their studies, and further, that the calling up of more medical students that have completed their first year of study should cease.

AMERICAN MEDICAL OFFICERS IN ENGLAND

American Army surgeons continue to arrive in this country and take up duty in the military hospitals of London and the provinces as well as in France. There are now over 900 serving with the British forces in Great Britain and France. In addition, during the past year there has been a constant stream of American civilian physicians drafted into our hospitals. The arrangement *has a* double advantage. It relieves the drain *on the* civil medical profession in this country and it gives our *American* colleagues the opportunity of gaining experience of the wounds of modern warfare which, no doubt, they will later turn to account in treating their own soldiers.

The replacement of part-time and in some cases whole-time civilian physicians employed in military *hospitals by* American surgeons has given rise to some *resentment* in consequence of the curt manner *in which the change* was announced by the War Office. There is *no question* as to the American surgeons' being *perfectly* welcomed by their British colleagues as well as by the country at *large*. The British surgeons were simply given a week's *notice that* their services were no longer required by the War *Office*, and they were *not* even thanked, although many of them had made *sacrifices* in order to undertake the work. *The War Office* no doubt finds justification for the immediate *employment* of American surgeons by the fact that the Central *Medical* War Committee has informed it that no more *physicians* can be called up for the army without seriously endangering the supply for the treatment of the civil community. *However*, the replacement has taken place in districts in which there is no shortage of physicians. The mistake made by *the* War Office consisted in not consulting *the professional* committees as to the places where this could be *done with* the greatest advantage to the civil community. *The tendency*, of course, of military authorities everywhere is to give orders and not to try to satisfy or take into account the opinions of persons concerned.

CAMPAIGN AGAINST VENEREAL DISEASE

Considerable progress has been made with the organization of measures for the provision of free diagnosis and treat*ment for persons* suffering from venereal diseases, or suspected to be suffering from them. Between 140 and 150 hospitals in England and Wales have expressed their willingness to participate in the schemes of local authorities, and although *in* a few instances the authorities of important hospitals have been reluctant to inaugurate during the war any fresh arrangements for the treatment of these diseases, this hesita*tion has* been overcome in some cases. The shortage of medical staff and the pressure on the accommodation at most hospitals have presented obstacles. The former difficulty has been met to some extent by the Army Council's arranging that certain officers of the Army Medical Corps specially skilled in the treatment of venereal diseases should devote part of their time to the work of the clinics provided at general hospitals for the treatment of these diseases. Complete schemes have already been submitted by 115 out of the 145 councils that are charged with the execution of the regulations. The total population of the areas of these councils is about 29,000,000. Eighty-nine schemes, serving a population of about 25,000,000, have been approved, and the work has already started at sixty-two hospitals. It is estimated that the facilities provided at these hospitals will serve a population of at least 18,000,000.

ARTIFICIAL LIMBS FOR SOLDIERS

Great attention is being devoted to providing the best artificial limbs possible for the large number of mutilated men discharged from the army. Mr. John Hodge, *minister of pensions, speaking at a public function*, said that the outstanding ideal before the Pensions Ministry was not the allotment of pensions so much as the restoration to useful citizenship *of mutilated men. Wherever possible* an endeavor would be made to restore men to the full use of *their* limbs, and he was seeking *money from the government for* the purpose of starting a national *experimental* laboratory where we might get as near as *possible* to perfection in artificial limbs. He desired to call to his aid the greatest skill and the greatest inventive faculty that the *country* possessed in order to get the *best artificial* limb possible. Incidentally he mentioned that there were 900,000 pensioners on the books of his department, and that this number was being increased by hundreds every week.

FOOD ECONOMY

In a press interview, Lord Rhondda, the food controller, has announced a fresh campaign to awaken the public to the vital necessity of decreased eating. If *voluntary* measures fail, he will have no compunction in *putting* the nation on compulsory rations. The danger of the food situation lies *not to so much* in the submarine peril as in the world shortage of cereals, meats and fats. The timely action of the United States *government, in strenuously* curtailing food exports to neutral countries, should be of inestimable benefit to the Allies in Europe. But the tightening of the blockade is a two-edged sword. Imports of *bacon* and other products into the United *Kingdom from* Denmark *are* thereby bound to be seriously reduced. This *throws* us more than ever on the North American continent for *our* supplies. What we ask from the United States and Canada we cannot procure elsewhere. Unless the Allies in *Europe are* able to import the supplies necessary *for* feeding their *armies* and the civil populations, victory may slip *from* our united *grasp*. During the forthcoming twelve months, our minimum requirements in foodstuffs from the United States and *Canada* will amount to over 10,000,000 tons, and will *represent an* expenditure, without freight charges, *exceeding* $1,250,000,000 *or* roughly speaking, between 3 and 4 million *dollars* a day. Most of this will be for the purchase of cereals, *hog products*, sugar and meat. Several steps have *recently* been taken with a view to closer cooperation. The *first* is the formation by France, Italy and the British *government* of a meats and fats executive, on the lines of *the wheat* executive, which since last October has been buying in the United States and Canada all the wheat required by the Allies. *In* the future all *purchases*, by the Allies, of bacon, ham, lard, butter and cheese in the United States will be pooled through this newly formed executive, thus *eliminating* competitive buying between the Allies, which inevitably tended to raise prices on the North American continent and at home. Several thousand tons of bacon have been bought within the last few days. Executives to pool purchases, by the Allies, of other foodstuffs may be established before long. A special mission, representing the Ministry of Food, will shortly leave for New York to set up the permanent organization for the meats and fats executive to take up with Mr. Hoover on the spot those matters that vitally affect us, and to keep us informed of developments in the United States and Canada. A long stride has been taken toward the stability of the sugar trade. The difficulty of providing shipping for sugar from the East has been largely responsible for a world shortage, with increased competition—and consequent high prices—for the Cuban crop. Mr. Hoover suggested that purchases of Cuban sugar should be centralized in a committee to sit in New York, on which Great Britain should have two delegates. As to prices, while Lord Rhondda admits that we are paying to the United States and Canada today for all our most important imported foodstuffs more than double what we paid before the war, he expresses his confidence that Mr. Hoover and Mr. Hanna are taking steps similar to those taken in this country to limit the profits derived from the food industries. Sir Arthur Yapp, director of food economy, has issued through the religious press an appeal to the churches, asking for their support and for the display of Christian patriotism in the direction of the conservation of food.

A Ministry of Public Health

As foreshadowed in previous letters to The Journal, draft legislation for the creation of a ministry of public health has been submitted to the government. Among the many problems that will face the government after the war, that of health and the cure of disease is one of the most important. The whole tendency of recent years is for the state to employ the medical profession more and more. Commencing with health officers, there were instituted in succession factory surgeons, school medical officers and tuberculosis medical officers. Finally came the insurance act, which transformed most of the physicians of the country into part-time state employees. During the last ten years the government has shown great and increasing activity in promoting maternity and infant welfare. Thus we have reached a stage in which an enormous amount of treatment is given by the state, either gratuitously or partly gratuitously. Like the institutions of this country in general, the various departments concerned with public health have grown up as the necessity arose, and were not created according to any theoretically elaborated plan. The result is a want of coordination and some consequent overlapping of the work of the departments. These disadvantages would be overcome by a ministry of health which would take charge of the whole field. But its establishment will encounter many difficulties because of the various interests involved. The insurance act authorities who represent the great friendly societies have certain views which probably diverge from those of the local government authorities, who now administer health legislation. The medical profession, again, has its own ideals, and views with alarm the increasing activity of the state, which may in the end reduce physicians to little more than state officials. A ministry of health does not necessarily imply this, but it is a great step which would facilitate the transformation.

A Chair of Tuberculosis

The Edinburgh University Court has instituted a chair of tuberculosis, the first one in this country. Sir Robert Philip, the writer on the treatment of tuberculosis, has been appointed as the first professor. The appointment is appropriate, as he was the founder at Edinburgh in 1887 of the first tuberculosis dispensary in the world. The movement then spread from Edinburgh to the European continent and to America.

PARIS LETTER

Paris, Sept. 27, 1917.

The War

PROTECTION OF THE CHEST AND ABDOMEN OF COMBATANTS

At one of the recent meetings of the Académie de médecine, Dr. Delorme, medical inspector-general of the Service de Santé militaire, presented a communication on this subject. He stated that it was practically impossible to obtain complete and absolute protection of the thorax and abdomen by means of any protective apparatus because of the velocity and penetrating force of the rifle bullets; however, a considerable protection can be given against shell fragments, grenades and shrapnel, because the penetrating force of these missiles is much less than that of bullets. In trench warfare these missiles have, in a measure, replaced the bullet. A thoracico-abdominal protector made of a thin sheet of steel gives as much protection to the internal organs or viscera as does the steel helmet for the skull. Dr. Delorme has not sought to guarantee protection of all the thorax and all of the abdomen, but only those organs which, when wounded or injured, give rise to serious or grave conditions. They are the heart, the large vessels, the hilum of the lung, the lung itself, and the small intestine. The proposed cuirasse or chest protector may be made of a steel plate or of pieces or "leaves" (*feuilles*) of leather. On the basis of experience Delorme prefers the former, and he presented a model which will protect the combatant while he is advancing, as well as when he is lying down in the position of a reclining marksman, the shield being switched from front to back, as may be necessary. The academy appointed a commission to study this question, and its findings, whatever they may be, will be referred to the ministry of war.

TREATMENT OF INFECTED WOUNDS BY IODIZED STARCH

M. Auguste Lumière recently addressed the Académie des sciences on the advantages accruing from the use of iodized starch in the treatment of infected wounds, especially wounds of the soft parts, without the formation of deep fistulas or sinuses which would be inaccessible to the antiseptic. This antiseptic, iodized starch, has given much satisfaction. Wounds have been sterilized in a very short time. In the case of deep wounds of the soft parts without fracture, Lumière has used iodized starch irrigation according to the method of Carrel with great success. For that purpose he has made use of the following solution: soluble starch, 25 gm.; boiling water, 1,000 gm., "solution of iodo-iodurée à 1 per cent.," 50 c.c. This solution contains per liter 0.5 gm. of iodin, and is possessed of an antiseptic power that is equal to that of neutral solution of chlorinated soda. The solution is not irritating to the skin, nor does it injure clothing or bedding. Wounds treated with the solution heal with remarkable rapidity.

CONGRESS OF THE MUTILATED

A new congress, devoted to the study of the interesting question of "war injured," will be convened some time during the month of November, 1917. The organizers of the congress are the mutilated themselves, and delegates from all societies now existing in France for the purpose of assisting these men and protecting their interests will be present. A provisional program has been drawn up by the "Société Aide et protection" (society of aid and protection), the oldest of these mutual aid and defense societies. The principal points to be discussed at this congress are the following: raising pensions, and making a new classification of infirmities; questions relating to prosthetic appliances, placing the mutilated, employing reserves, admission requirements, institutions of cooperation, protection and conservation; the question of half pay without pension and the discharged auxiliaries, and the creation of a permanent council of mutilated, which will discuss and arbitrate all the matters in dispute. The address of the secretary of the National Congress of the Mutilated is rue Molière, 15, Paris.

RELIEF OF MEDICAL MEN IN THE ARMY OF THE ORIENT

Deputy Josse, having asked the ministry of war the following questions, (1) why the medical men of the Army of the East are not all treated in the same manner and from the same point of view, namely, the length of service, some having often seen certain of their comrades return to France without being ill, although they themselves have been there more than twenty months, and (2) whether a definite order of leave is obtainable, has received the following response: The relief of the officers of the Service de Santé of the Army of the East is affected according to the conditions provided for and applying in the Armies of the North and Northeast. It is not possible to follow strictly a rule of leave for the return of the personnel of the Army of the East, by reason of the perfect physical condition needed to resist, even under the best conditions, the climate of the Balkan peninsula. The choice of the officers sent to the Army of the East is always made on the basis of youth and health, although volunteers of all ages who can meet the physical requirements are accepted.

RÔLE OF THE AMERICAN RED CROSS

At a recent reunion of the Anglo-American Press Association, Major Murphy, high commissioner of the American Red Cross in Europe, speaking of the *purposes* of this organization, said that whatever may be the character of the American Red Cross in time of peace, he held the firm conviction that today, during this catastrophe, its supreme function is to help in every way possible to win the war. It would be in truth pitiable and despicable to regard its worth as charity alone at a time like this. During the past three years our allies have taken on themselves our part of the fight. They have borne all the burden of the difficulty, they have suffered all the wounds, they alone have died. It is inevitable that some time must pass before our troops can take their part in the trenches. *When the time comes*, the American organizations will demand a like privilege, and will consider it an obligation to do all that lies in their power to help the valiant nations, to whom our people are indebted.

AMERICAN DECORATED BY LEGION OF HONOR

The president of the republic has decided to award the cross of the Legion of Honor to Mrs. Henry Morgenthau, wife of the ex-ambassador of the United States to Constantinople. Mrs. Morgenthau has rendered invaluable service to the French hospital of Constantinople.

IMPROVING WAR BREAD BY NEUTRALIZING THE BRAN FERMENTS

For some time the effort has been made to improve war bread, and this subject has been spoken about often before the Académie des sciences and the Académie de médecine. Notable communications have been made by M. Lapicque, professor in the museum of natural history, and by Dr. Legendre to improve the quality of the bread manufactured from flour bolted at 85 per cent., simply by utilizing lime water in place of ordinary water for kneading the dough. The lime so introduced neutralizes the acidity of the flour containing a considerable proportion of bran, prevents the fermentation of the bread, and assures the best qualities in bread.

The Académie de médecine has appointed a commission to investigate this procedure, and recommend its adoption by the public if it is found to be valuable.

THE WAR AND GENERAL PARALYSIS

The three Paris societies which are devoted to the study of mental diseases, the Société clinque de médecine mentale, the Société medico-psychologique and the Société de psychiatrie, recently held two joint meetings to discuss two important questions in military mental medicine: the discharge of men with general paralysis, and shell shock with its special etiology, evolution and sequels. A whole session was devoted to each of these questions in turn, with M. Justin Godart, undersecretary of state for the military medical service, in the chair at one meeting, and Dr. Simonin, medical inspector, presiding at the second meeting.

The discussion on the discharge of soldiers with general paralysis was brought about by the extremely severe rule voted by the Société de neurologie in December, 1916, on this subject, and by the too literal application of this rule by the medical men entrusted with the task of passing on the candidates for discharge from the army. The society had officially declared that every soldier with general paralysis should be granted discharge No. 2, except when he had been *the victim* of traumatism of the brain, in which case discharge No. 1 should be granted with an incapacity rate of from 10 to 30 per cent.

Dr. Pactet, *in the* leading address, demonstrated that a doctrinal question was responsible for the vote of the Société de neurologie, namely, the belief that general paralysis is exclusively syphilitic in its origin. But to be *syphilitic* is *not* enough to bring on general paralysis. Can any one affirm that the *fatigues*, the emotions, the dangers of the war do not play a part in localizing, aggravating and accelerating the production of the meningo-encephalitis? Instead of regarding *en bloc* all the cases of general paralysis, each should be given a separate examination, and in each individual case the effort should be made *to estimate* the part for which the circumstances of war are responsible, just *as is* being done for the tuberculous. The *military* authorities must be asked for the data as to the services imposed on the patient, *and if* the general paralysis *seems to have* been influenced by them, then grant discharge *No.* 1, with a pretty high rate of *incapacity*. Dr. Lépine, professor of *nervous* and mental diseases at Lyons, declared his views as entirely *in* accordance with those of Dr. Pactet. Dr. *Dupré*, agrégé professor at Paris and hospital physician, insisted on the exclusively syphilitic origin of general paralysis, and *demanded* that discharge No. 1 should be reserved *for* cases in which some grave war mishap could be invoked.

Dr. Marie, physician-in-chief to the public *Asiles* of the Seine department, and Lortat-Jacob, Paris *hospital* physician, gave a description of the general paralysis of wartime as running a much shorter course, with no intermissions, with repeated sudden attacks, and with an early fatal outcome, skipping the stage of helpless dementia. Dr. Vallon, physician-in-chief of the Asile Sainte Anne, reiterated that the interests of the patients must not be sacrificed to too absolute thories—"fragile, like all theories." In the question of discharge *from* the military service, as *in* all medicolegal problems, each case *must* be studied separately, and the men on active service should not be treated any less favorably than workmen becoming paralyzed after an industrial accident.

Dr. Roubinovitch, physician-in-chief of the Bicêtre and Salpêtrière hospitals, expatiated on the lessons to be learned from the Russo-Japanese War, which led to recrudescence of *cases of paretic* dementia in the army. Dr. Colin, physician-in-chief of the insane asylum at Villejuif, presented an array of exact data regarding the cases of general paralysis in *soldiers* that he has had in his charge. He remarked further *that* wounds of the brain are spoken *of always as authorizing* discharge No. 1, but in this connection *it* must be borne in mind that general *paralysis* has never been observed in men wounded in the brain. The physicians on the military discharge commissions interpret in the narrowest sense the term *traumatisme encéphalique*. The restrictions in question will not be applicable to more than a small *proportion of the* patients, not over 15 per cent., the majority of cases being among the territorials, the noncombatants. He then specified *some cases in which* the routine application of discharge No. 2 would constitute a revolting injustice.

The following rule was finally definitely adopted by a unanimous vote. For men with general paralysis, accord discharge No. 2, except in special cases in which a careful inquiry would demonstrate in times of peace, and more especially in time of war, the aggravating influence of military service. The rate of disability should then be from 60 to 80 per cent.

Death of Dr. Legludic

Word has been received of the death of Dr. Legludic, formerly director of the school of medicine and pharmacy of Angers, and physician in chief in the Hôtel-Dieu of that city. Dr. Legludic was 78 years of age.

Marriages

Lieut. Wade H. Fortner, M. R. C., U. S. Army, Princeton, Wis., to Miss Elsie Pineau of Milwaukee, at Fond due Lac, Wis., September 26.

Major Charles Walter Haverkampf, M. C., U. S. Army, Fort Oglethorpe, Ga., to Miss Francis Marion Armitage of Chicago, October 17.

Lieut. Louis Wallace Frank, M. R. C., U. S. Army, to Miss Jean Macdonough, both of Philadelphia, in New York, September 30.

Surg. Irving Whitmore Robbins, U. S. Navy, to Miss Caroline Brandriff Moore of Washington, D. C., at Scarsdale, N. Y., August 21.

Lieut. Charles R. Irving, M. C., W. Va. N. G., Hansford, W. Va., to Miss Elizabeth Logan Bentley of Richmond, Va., September 25.

Clarence Edward Northcutt, M.D., Lexington, Okla., to Miss Marie Robertson of Pauls Valley, Okla., August 30.

Homer Winfield Crane, M.D., Berkeley, Calif., to Miss Jessie Overshiner of Manteca, Calif., October 16.

Forrest Leroy Schumacher, M.D., DuBois, Pa., to Miss Emma Vail of Punxsutawney, Pa., October 3.

Michael Joseph McCarty, M.D., Pottsville, Pa., to Miss Blanche Reilly of Freeland, Pa., October 3.

William Christopher Williams, M.D., to Miss Ethel Mae Hopkins, both of Durham, N. C., October 4.

Julius Raymond Fernandez, M.D., to Miss Agnes E. Pedeaux, both of New Orleans, October 3.

Ward Allen Minor, M.D., to Mrs. Bessie Bogart, both of Utica, N. Y., September 8.

Deaths

William Moore Wright, M.D., Huntingdon, Tenn.; Washington University, St. Louis, 1869; aged 78; formerly a Fellow of the American Medical Association; a member of the Tennessee State Medical Association; a surgeon in the Confederate service throughout the Civil War; a member of the Tennessee Constitutional Convention in 1870; superintendent of prisons in Tennessee from 1871 to 1875; a trustee of the Tennessee Hospital for Insane, Nashville, from 1875 to 1879, and a trustee of the West Tennessee Hospital for the Insane, Bolivar, for several years; died at his home, October 6.

Wyman W. Pilcher, M.D., Warrenton, Ga.; Medical College of Georgia, Augusta, 1893; aged 47; formerly a Fellow of the American Medical Association; a member and president in 1912 and 1913 of the Medical Association of Georgia; one of the most prominent physicians of the South; trustee of the Warrenton Public School; died in the University Hospital, Augusta, October 8, from heart disease.

John Edwin Rigg, M.D., Wilkinsburg, Pa.; College of Physicians and Surgeons, Baltimore, 1879; aged 62; a Fellow of the American Medical Association, and once president of the Allegheny County Medical Society; for two years school director, and for several years president of the local board of health; president of the First National Bank of Wilkinsburg; died at his home, October 3.

James Stifer Gilbert, M.D., Bordentown, N. J.; College of Physicians and Surgeons, Baltimore, 1886; aged 58; formerly a Fellow of the American Medical Association; a member of the Medical Society of New Jersey; from 1896 to 1901 mayor of the city, and later, when Bordentown adopted the commission form of government, continued as mayor; died at his home, October 11.

Melvin Sheldon, M.D., Brooklyn, N. Y.; Albany, N. Y., Medical College, 1893; aged 51; a member of the Medical Society of the State of New York, and for some time a member of the staff of the Samaritan Hospital, Brooklyn; treasurer of the Physicians' Economic League, of Brooklyn; died at his summer home, in Churchtown, N. Y., October 8, from pneumonia.

Albert Preston Tarter, M.D., Alameda, Calif.; University of California, San Francisco, 1882; aged 57; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of California; district surgeon to the Southern Pacific System; died at the Alameda Sanatorium, October 6, after an operation for disease of the intestines.

Earl Micaiah Stewart, M.D., St. Joseph, Mo.; University of Louisville, Ky., 1908; aged 33; formerly assistant surgeon, U. S. P. H. S., and on duty in the Marine Hospital, Louisville, and later surgeon in charge of the Santa Fe Hospital, La Junta, Colo.; died at the home of his parents, in St. Joseph, October 1, from laryngeal tuberculosis.

George W. Bruce, M.D., Moundsville, W. Va.; University of Pennsylvania, Philadelphia, 1848; aged 90; a member of the West Virginia State Medical Association; for several terms a member of the common council of Moundsville, and once mayor of the city; president of the Marshall County Bank; died at his home, October 6.

Hezekiah Gilbert Leigh, Jr., M.D., Petersburg, Va.; Bellevue Hospital Medical College, 1891; aged about 50; a member of the Medical Society of Virginia, and for many years coroner of the city, and surgeon for the Atlantic Coast Line Railway; died, September 22, at Blue Ridge Summit, Pa., from heart disease.

James A. Gibson, M.D., Buffalo, N. Y.; Western University, London, Ont., 1890; aged 50; a Fellow of the American Medical Association; secretary and professor of anatomy in the University of Buffalo; a member of the American Association of Anatomists; died at his home, October 4, from pneumonia.

Fremont C. Jones, M.D., Ebensburg, Pa.; University of Pennsylvania, Philadelphia, 1885; aged 55; formerly a Fellow of the American Medical Association; local surgeon of the Pennsylvania system, and physician to the Cambria County almshouse and jail; died at his home, October 4, from heart disease.

Obadiah Layton Huffman, M.D., Galion, Ohio; Jefferson Medical College, 1894; aged 56; formerly a member of the Ohio State Medical Association; a specialist in diseases of the eye, ear, nose and throat; died while making a professional call near Galion, October 7, from cerebral hemorrhage.

Andrew Baxter Miller, M.D., Chicago; College of Physicians and Surgeons, Chicago, 1898; aged 45; a Fellow of the American Medical Association; professor of clinical gynecology in the Chicago College of Medicine and Surgery; died in his office, October 19, from heart disease.

William Scott Thompson, M.D., Girard, Ohio; Starling Medical College, Columbus, Ohio, 1896; aged 47; formerly a Fellow of the American Medical Association; for many years local health officer; died in St. Elizabeth's Hospital, Girard, October 10, from pleuropneumonia.

John Copestake, M.D., Ames, Iowa; Queen's College, Birmingham, England, 1858; aged 80; a veteran of the Civil War, who was run over by an automobile in Chicago, September 17, died in the Presbyterian Hospital from his injuries, a few hours later.

Harmer M. Newman, M.D., South Milford, Ind.; Rush Medical College, 1886; aged 57; formerly a fellow of the American Medical Association; a member of the Indiana State Medical Association; died at his home, October 12, from nephritis.

Frank Herbert Gardner, M.D., Portland, Me.; Bowdoin Medical School, Brunswick and Portland, 1878; aged 63; formerly a Fellow of the American Medical Association; a member of the Maine Medical Association; died at his home, October 7.

Alfred L. Lafferty, M.D., Las Animas, Colo.; Keokuk Medical College, College of Physicians and Surgeons, 1905; aged 36; formerly a member of the Colorado State Medical Society; died at Howard, Colo., October 5, from tuberculosis.

Will Orvis Scott, M.D., Parish, N. Y.; Albany, N. Y., Medical College, 1891; aged 49; formerly a member of the Medical Society of the State of New York; died in Massena Springs, N. Y., May 24, from chronic parenchymatous nephritis.

Vardaman S. McLellan, M.D., Canton, Miss.; Kentucky School of Medicine, Louisville, 1891; aged 47; a member of the Mississippi State Medical Association; health officer of Madison County; died at his home, September 21, from acute gastritis.

Frederick J. Tischbein, M.D., Cincinnati; Medical College of Ohio, Cincinnati, 1895; aged 45; formerly a member of the Ohio State Medical Association; died at his home in Sedamville, Cincinnati, October 6, from cerebral hemorrhage.

John Byron Burns, M.D., North Yakima, Wash.; Trinity University, Toronto, Ont., 1896, aged 60; formerly a Fellow of the American Medical Association; died at the home of his son in North Yakima, October 4, from heart disease.

Glenn Lazarus Todd, M.D., Jackson, Miss.; Atlanta, Ga., College of Physicians and Surgeons, 1907; aged 35; a member of the Mississippi State Medical Association; was shot and killed in his office in Jackson, October 10.

George Raymond McDonagh, M.D., Toronto, Ont.; University of Toronto, Ont., 1876; L. R. C. P., London, 1877; aged 61; professor of otolaryngology in his alma mater; died at his home, August 26, from pneumonia.

Frederick Phineas Drake, M.D., London, Ont.; Victoria University, Coburg, Ont., 1883; aged 58; associate professor of medicine in the Western University, London, Ont.; died at his home, October 6, from heart disease.

Joseph Francis Somes, M.D., Vincennes, Ind.; Rush Medical College, 1889; aged 53; formerly a Fellow of the American Medical Association; a member of the Indiana State Medical Association; died at his home, September 28.

Arthur Lee Campbell, M.D., Kansas City, Mo.; St. Louis College of Physicians and Surgeons, 1890; Marion-Sims College of Medicine, St. Louis, 1891; aged 49; died in his private hospital in Kansas City, September 27.

Michael Richard Laden, M.D., Hartford, Conn.; New York University, New York City, 1898; aged 43; formerly a Fellow of the American Medical Association; died at his home, August 2, from heat prostration.

John Wesley Stork, M.D., Darmstadt, Ind.; Kentucky School of Medicine, Louisville, 1895; aged 46; a Fellow of the American Medical Association; died at his home, October 1, from cerebral hemorrhage.

Quimbert C. Schuhart, M.D., Rochester, N. Y.; College of Physicians and Surgeons, Baltimore, 1882; aged 61; formerly a member of the Medical Society of the State of New York; died at his home about September 24.

Alfred M. Gamman, M.D., Corning, N. Y.; New York Homeopathic Medical College, New York, 1866; aged 65; a pioneer oil man of Tulsa, Okla.; died in a hospital in Kansas City, October 5, from nephritis.

Harry Morris Capwell, M.D., Meshoppen, Pa.; Temple University, Philadelphia, 1915; formerly an intern in the Robert Packer Hospital, Sayre, Pa.; died at his home, September 22, from pulmonary tuberculosis.

William Urias Truckenmiller, M.D., Allenwood, Pa.; Buffalo University, 1868; aged 76; formerly a member of the Medical Society of the State of Pennsylvania; died on his farm, near Allenwood, September 30.

Wright Hall, M.D., Wilmington, N. C.; Edinborough Medical College, Lumbertown, N. C., 1875; aged 68; a member of the Medical Society of the State of North Carolina; died at his home, September 30.

Nora Soule Davenport, M.D., River Forest, Ill.; Northwestern University, Women's Medical School, Chicago, 1889; aged 72; a Fellow of the American Medical Association; died at her home, October 7.

Daisy Estelle Brown Bonner, M.D., Mount Sterling, Ky.; Woman's Medical College of Pennsylvania, Philadelphia, 1907; aged 38; a colored practitioner; died at her home, August 13, from uremia.

Jonathan Leigh, M.D., Hiawatha, Kan.; Washington University, St. Louis, 1854; aged 100; for sixty years a practitioner of Doniphan County; died at his home, October 9, from heart disease.

Charles H. Nourse, M.D., Darnestown, Md.; Georgetown University, Washington, D. C., 1869; aged 73; a member of the Medical and Chirurgical Faculty of Maryland; died at his home, October 11.

Sarah F. Harris Norris, M.D., Hyde Park, Boston; New England Female Medical College, Boston, 1872; for eight years a medical missionary in Bombay, India; died at her home, October 2.

Joseph Dorpat, M.D., Arapahoe, Neb.; Missouri Medical College, St. Louis, 1875; aged 91; a veteran of the Civil War; died at the home of his daughter in Arapahoe, July 24, from senile debility.

John Henry Ellison, M.D., Altoona, Ala.; University of Tennessee, Nashville, 1888; aged 55; a member of the Medical Association of the State of Alabama; died at his home, September 26.

Jesse W. Hill, M.D., Fort Worth, Texas; University of Pennsylvania, Philadelphia, 1855; aged 84; a Confederate veteran; died at the home of his son, in Fort Worth, September 28.

James Henry Garlick, M.D., Staunton, Va.; Medical College of Virginia, Richmond, 1865; aged 75; a member of the Medical Society of Virginia; died at his home, October 7.

Charles W. Benham, M.D., Vincennes, Ind.; Louisville, Ky., Medical College, 1889; aged 56; a Fellow of the American Medical Association; died at his home, about October 3.

Gilbert Knapp Ellis, M.D., South Sodus, N. Y.; Niagara University, Buffalo, 1886; University of Buffalo, N. Y., 1897; aged 60; died at his home, September 19, from diabetes.

John Raymond Stark, M.D., Indianapolis; Indiana University, Indianapolis, 1913; an honor graduate; aged 26; died suddenly at his home, September 30, from heart disease.

Robert H. Cabell, Chillicothe, Mo. (license, Missouri, 1864); aged 83; formerly a member of the Missouri State Medical Association; died at his home, October 8.

Sebe Duane Austin, M.D., Albuquerque, N. M.; Cleveland College of Physicians and Surgeons, 1910; formerly of Marlboro, Ohio; died in Albuquerque, September 28.

Samuel D. Logan, M.D., Cainesville, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1874; aged 73; died at his home, October 2, from nephritis.

George Wood Jewett, M.D., Brewster, N. Y.; New York University, New York City, 1884; aged 85; died at the home of his grandson, in Brewster, October 4.

William Francis O'Brien, M.D., Pawtucket, R. I.; Tufts College Medical School, Boston, 1904; aged 38; died at his home, August 28, from typhoid fever.

H. C. H. H[illegible]comb, M.D., Ashtabula, Ohio; Philadelphia University of Medicine and Surgery, 1868; aged 74; died at his home, September 23.

A. M. Horner, Laredo, Texas (license, Texas, forty-third judicial district board, 1907); died about September 28.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

"HAINES' GOLDEN TREATMENT"

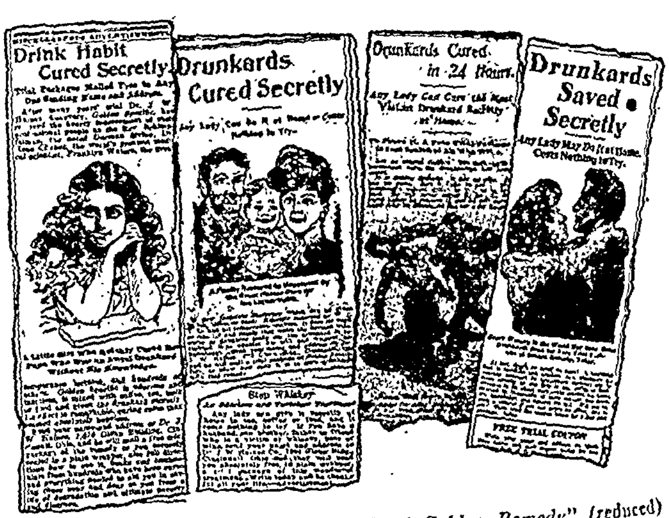
A Cruel Humbug Exploited as a Cure for the Liquor Habit

"Dr. Haines' Golden Treatment" is sold and advertised by the Golden Specific Company of Cincinnati, Ohio. Before lying on the trade package carried with it a risk of prosecution, the "Golden *Treatment*" was sold as "Golden *Specific*." The preparation is one of the numerous fakes exploited as cures for the liquor habit which can be given secretly, curing the alcoholic *in spite of himself*. Here are some of the claims that have been made:

> "Golden Treatment is Odorless and Tasteless—*Any Lady Can Give* It Secretly at Home in Tea, Coffee, or Food."
>
> "Golden Remedy, the Great Home Treatment For Drunkards."
>
> "*Let no woman despair.* The sure quick permanent cure for drunk*ards has been found. It is Golden Remedy.* It has no odor. It has *no taste. Just a little* is put in the drunkard's cup of coffee or tea or in his food. *He will never notice it, he will* be cured before he realizes *it, and he will never* know why he abandoned the *taste for* liquor."
>
> "Golden Remedy has cured some of the most violent cases in a day's time."
>
> ". . . a craving for liquor relieved in thousands of cases without the drinker's knowledge, and against his will."

Any *one* with an *elementary* knowledge of the treatment *of alcoholism knows how cruelly false such claims* as these are. Not only is the statement that the stuff will cure the drunkard "without his knowledge" and "against his will" a falsehood, but it is also a cowardly falsehood in that it deceives those who in the very nature of the case will hesitate to raise any protest against the deception.

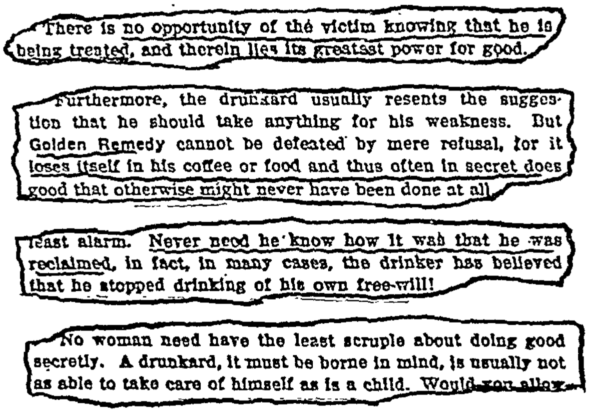
The Golden Specific Company advertises that it will send a "free trial package" to any one who will use it. Those who answer the advertisements are sent (1) a form letter so prepared as to simulate an individual communication, (2) a sample of the "Golden Treatment" and (3) a booklet entitled "The National Curse, Drunkenness." The letter, the directions on the *sample treatment*, and especially the booklet all emphasize the *alleged ease* with which drunkards can be cured without their knowledge and against their will. Says the letter: "We are sending *you* a *trial* package of Golden Treatment . . . to *prove to you* how easily and secretly it can be given . . . *without the drunkard* ever *suspecting* that he is being treated at *all*." *And* the booklet: "Many drunkards have been *made* temperate *men* who have taken Golden Treatment in their coffee *without their* knowledge, and today believe *They Quit-Drinking* of Their Own Free Will." And *elsewhere* in the book: "There is *no oppor-*


Drink Habit Cured Secretly
Drunkards Cured Secretly
Drunkards Cured in 24 Hours
Drunkards Saved Secretly
FREE TRIAL COUPON

Some typical advertisements of "Haines' Golden *Remedy*" (reduced) of various dates.

tunity of the victim knowing that he is being treated, and therein lies its greatest power for good." On the envelope containing the sample treatment we read: "This is but a trial treatment to show how easily and secretly it may be given . . ." The directions accompanying the sample are very brief, but the recipient is told that "fuller directions and suggestions accompany the full treatment."

Those who send for the "full treatment" (price $3.00) receive a box containing forty powders. The directions accompanying the box are, as was promised on the "trial treatment," much fuller. Moreover there is a marked difference in the attitude of the company toward its victim after it once has received payment for its worthless treatment. The whole trend of the advertising (until the purchase is actually made and the money paid) is that of leading the prospective purchaser to believe that the "treatment" is not only efficacious when given without the knowledge of the patient, but that this is an ideal way to administer it. The directions that accompany the $3.00 package of powders, however, express, or at least imply, doubt as to the probability of success unless the patient is anxious to be cured of his habit and takes the stuff knowingly. "If necessary to administer without the knowledge of the patient . . ."—commence the directions after the victim has paid her money; and: "Whenever it is possible to induce the patient to take the treatment *voluntarily* with a full knowledge of its qualities and effects, it is always the better way . . ." Further, the poor woman, who has purchased this "treatment" in the belief that she can reclaim her husband or brother or father, without his knowledge, is told that "after patient has been under treatment for two days, give sponge (or towel) baths of warm salt water every three days for at least two weeks"! Finally, of course: "If one treatment does not succeed, get another quick."



There is no opportunity of the victim knowing that he is being treated, and therein lies its greatest power for good.

Furthermore, the drunkard usually resents the suggestion that he should take anything for his weakness. But Golden Remedy cannot be defeated by mere refusal, for it loses itself in his coffee or food and thus often in secret does good that otherwise might never have been done at all.

least alarm. Never need he know how it was that he was reclaimed, in fact, in many cases, the drinker has believed that he stopped drinking of his own free-will!

No woman need have the least scruple about doing good secretly. A drunkard, it must be borne in mind, is usually not as able to take care of himself as is a child. Would

Reproductions of clippings from the booklet sent to prospective victims by the Golden Specific Company. Note the emphasis put on the alleged power of the "Golden Remedy" to cure the liquor habit without the knowledge or cooperation of the patient.

Although the worthlessness of this product is obvious it was believed that its composition would be of interest, and an analysis of the stuff was made in the Chemical Laboratory of the Association. The report follows:

LABORATORY REPORT

"Original packages of 'Dr. Haines' Golden Treatment for the Liquor Habit' (price, $3.00 each), prepared by the *Golden Specific Co.*, Cincinnati, O., were submitted to the Chemical Laboratory for examination. Each box contained 40 powders, the average weight of each powder being .75 gm. (11.5 grains). The material had a light brown color, a celery-like odor and a sharp taste. Under the microscope a few starch grains resembling those of ipecac were discerned; wheat starch was present in relatively large amounts. Qualitative tests demonstrated the presence of capsicum, lactose, starch, a small amount of resin and a very small amount of alkaloid. The amount of alkaloid was so small that positive tests could not be obtained for the ipecac alkaloids. Emodin-bearing drugs were not present. The quantitative determinations were ash 1.47 per cent.; moisture (loss at 130°) 4.29 per cent.; lactose 47.5 per cent.; alkaloids 0.0003 per cent.

"From the analysis it appears that Dr. Haines' Golden Treatment is composed essentially of milk sugar, starch, capsicum and a minute amount of ipecac."

Mr. Samuel Hopkins Adams in his series in "The Great American Fraud" devoted one chapter to "The Scavengers." In it he paid his respects to the fakers who professed to cure the drug habit. In the same chapter Mr. Adams discussed the fake liquor-habit cures. In this connection he said:

"The Sunday newspapers and small weeklies teem with advertisements of 'drink cures,' which are supposed to exorcise the alcoholic craving when secretly given in tea or coffee. Few of these concoctions can be described as immediately dangerous, though none of them is really safe. All are swindles. They do not cure the drink habit."

Then Mr. Adams named several preparations of the type he had in mind. In the list was "Dr. Haines' Golden Specific"; it was properly classified.

Correspondence

EFFICIENCY METHODS AND THE PHYSICIAN'S WORK

To the Editor:—How can we, in this time of great demands, accomplish the best work possible with the least expenditure of time and strength? During the last twenty years such experts as Taylor, Gilbreth and Emerson have developed a new science of efficiency, making magician-like changes in the industrial world. Cannot something of this be applied to the physician's work?

Expert studies have proved two facts, and these must be clearly grasped before one can have any sympathetic understanding of this work. First, the average seemingly busy man wastes, daily, solely from inattention and carelessness, an incredible amount of time. Wastages of one to two hours working-time daily are not exceptional but ordinary. Second, processes one repeats over and over, even handed down through generations, do not thereby become perfected, but ossified. Working methods, to be improved, should be persistently studied, analyzed and recorded and the deductions applied. Let us consider a few of the efficiency principles:

1. Efficient Records: The science of quick, accurate, adequate case-recording should be developed. We have many varying systems. Too many of us keep no records at all. Convenient blanks, a good system of symbols, rubber stamps and outlines all need perfecting. More uniformity among workers in similar lines would tend greatly to scientific progress.

2. Standardized Conditions: In large industrial plants, experts are constantly at work planning the simplest details of choice, condition and arrangement of equipment, tools and materials. The physician's office and treatment rooms are, in a sense, a factory in which many complex processes are carried out. As a rule, equipment and arrangement simply grow. The moment's needs are met, and in time we have a helter-skelter mass of stuff with many really needful things lacking. Careful planning and listing of each detail of equipment, beginning with the larger details of office furniture, lighting, etc., the details of dressing-table, laboratory, emergency bag, the filing system for histories, medical journals, catalogs, can well be studied. Such changes simplify one's work and clarify and refresh one's mind. Results are immediate.

3. Standardized Operations: Mr. Frank Gilbreth chanced to see at an exposition an expert girl-operator labeling shoe-polish boxes. After a few minutes' use of his stop-watch he made suggestions whereby her speed increased from twenty boxes in forty seconds to twenty in twenty-six seconds on the first trial; and in twenty seconds on the second. Such results involve use of time and motion studies, methods which are described in the works of these experts and which can be applied to many of the activities of the physician. So routine a process as the questioning of patients can be greatly speeded, made accurate and improved by a few lists of ques-

tions covering routine points, planned and memorized. This does not tend to routinism, but, clarifying best present practices, makes a firm foundation for growth. Sequences of motion and process in all operations from the simplest, such as applying iodin, to the most complex manipulations of the surgeon, would respond well to study and analysis.

4. Written Practice Instructions: In the modern industrial plant each worker, from the highest paid to the lowliest, has his definite printed instructions for each detail of his work. The physician who has worked out a good process, such as a technic for cleansing the ear, giving hypodermic injections, etc., will naturally put this in writing for practice and future improvement. Our chief need here, however, is in good printed instructions for patients. Many of us do, more of us ought to, spend endless hours instructing our "chronics" how to eat, sleep, bathe, exercise, take enemas, cleanse cavities, etc., when such instructions could far better be given in printed slips, adapted for marking to apply to the individual case. Printed instructions are far better than hurried, perfunctory verbal ones.

Much valuable work along this line is now being done for the Medical Department of our Army and some by hospital staffs and the medical staffs of industrial corporations. I believe a general reading of the books in the appended list would prove rewarding, not only in a practical way but as a most interesting record of American ingenuity, persistence and achievement against opposition and discouragement:

Taylor, Frederic W.: Principles of Scientific Management.
Gilbreth, Frank E.: Motion Study.
Emerson, Harrington: Course in Personal Efficiency.
Hudders: Indexing and Filing.
Lewis, St. Elmo: Getting the Most Out of Business.

Stewart Lewis, M.D., Lakehurst, N. J.

THE EARLY RECOGNITION OF MULTIPLE SCLEROSIS

To the Editor:—Neither in a paper read at the last session of the American Medical Association on this subject nor in the discussion, was mention made of a symptom which, if observed early and correctly interpreted, helps very materially in the early recognition of the disease.

When either a chronic or an acute retrobulbar neuritis occurs which cannot be explained by the ordinary causes, especially in a youthful person, a suspicion of a beginning multiple sclerosis must be aroused even though none of the other cardinal symptoms are present. The first symptom of a chronic retrobulbar neuritis is usually an impaired vision; a most characteristic symptom is better vision at night than in the daytime. The cause of this impairment is a central scotoma, at first only for red or green, later absolute, due to the involvement of the papillomuscular bundle of nerve fibers.

Ophthalmoscopically it is possible at times in the early stages to distinguish a blurring of the temporal half of the disk, and later, a pallor; at times no distinguishable ophthalmoscopic signs are present. The commonest cause of a chronic retrobulbar neuritis is a chronic alcohol-tobacco poisoning—the so-called tobacco-alcohol amblyopia. Another frequent cause is diabetes. At times a chronic retrobulbar neuritis is due to occupational poisonings with lead, arsenic, dinitrobenzene, etc. When a retrobulbar neuritis of the chronic toxic type is present, and we are able to rule out tobacco-alcohol poisoning, diabetes or chronic occupational intoxication, a grave suspicion of a beginning multiple sclerosis must be aroused. In an acute retrobulbar neuritis the earliest symptoms are usually severe disturbances of central vision, and pain on moving the eyeball. Ophthalmoscopically the symptoms may vary from slight hyperemia of the nerve head to severe degrees of papillitis.

In the ordinary case of acute retrobulbar neuritis, there is a tendency to quick recovery. When, however, the attack has been a severe one and the nerve badly involved, atrophies, partial or complete, at times ensue.

The commonest cause of an acute retrobulbar neuritis is pus in one of the accessory nasal sinuses, especially in the sphenoidal; the anatomic relation of the sphenoidal sinus to the optic nerve is the cause of this. Almost any of the acute infectious diseases, as well as any form of poisoning, may bring about an acute retrobulbar neuritis.

When an acute retrobulbar neuritis occurs, and these various causes can be ruled out, multiple sclerosis must always be thought of. Bruns and Stolting (*Zeitschrift für Augenheilkunde*, January, 1900) found the optic nerve involved in thirteen out of thirty-eight cases of multiple sclerosis. Anatomic studies showed the pathology to be an interstitial neuritis in various and varying stages. This article first called my attention to the importance of either acute or chronic retrobulbar neuritis as an early symptom of multiple sclerosis. During the past seventeen years I have seen two cases in which this symptom was present when nothing else suggested a possible multiple sclerosis, both of which later developed into well defined cases of that disease.

E. F. Snydacker, M.D., Chicago.

THE MORAL OBLIGATION OF THE INTERN TO THE HOSPITAL

To the Editor:—I have read with much interest the letter of Dr. Lockwood in regard to the demoralization of hospital interns (The Journal, Oct. 13, 1917, p. 1290). If conditions in his own city are as deplorable as they seem from the perusal of his letter, I believe that much can be accomplished toward improving this regrettable state of affairs by a study of conditions elsewhere. It is usually impracticable in a large city to require those taking an examination for positions of hospital interns to sign a pledge stating that they will take no other hospital internships, if successful in the hospital that requires the pledge. From long experience on examining boards of several hospitals, I have formed the opinion that we must look on the problem from the point of view of the applicant as well as that of the examiner. It has been our custom at the Michael Reese Hospital during recent years to hold an examination at about the same time as that of other hospitals. The position as intern at the Cook County Hospital has always been considered as the greatest honor that an undergraduate could have. This is a matter of tradition which is well deserved and will probably always be so. We have attempted in the past to ask the young men to sign pledges not to take internships in any other hospital, and they have been so frequently broken that we think it best at present to look on the question from the point of view of the student and to permit him to take the Cook County examinations, and if he is successful in the latter, to choose between his Cook County position and our own. At the same time we have attempted through an educational campaign to show the resident staff that our hospital service is almost as good at the present time as the Cook County, and we have been very successful in having our interns recommend our service to various friends in the graduating class, and this more liberal policy has enabled us to omit any pledge. Our positions are taken by those successful candidates who do not prefer the county hospital positions, and the quality has been constantly improving, so that we have today a resident staff that can compare most favorably with that of the county hospital. We thoroughly disapprove of any system of appointing interns, and believe that a competitive examination is the best test, especially if it is combined with an investigation of the character and previous scholarship of the applicant. In Boston and New York the principal hospitals have combined and hold a joint examination for the position of intern, and then permit the successful applicant to take his choice of which hospital he desires to enter.

I am not ready to express an opinion in regard to the value of such a system, owing to a lack of personal experience. A fifth compulsory year, during which every member of the senior class will be obliged to serve a fifth hospital year before his degree will be given, will soon be in force in Illinois, and this will eliminate any friction that now exists. "The unfortunate laxity of professional obligation and duty which hospitals condone" in Dr. Lockwood's letter is one that is not likely to occur if competitive examinations for hospital positions are the rule, and a more liberal policy is pursued by hospitals toward their interns both at the time of examinations, and in giving them better treatment after entrance than many hospitals do at present.

If hospitals will agree not to accept an intern who has not completed his term of service in any other hospital, much of the abuse to which Dr. Lockwood refers, and dishonorable practices arising therefrom, will be abolished. By this I mean that candidates who have begun an intern service in another hospital cannot be lured to leave that hospital by friends who happen to be on another staff of interns, and not be able to get another position if they have been discharged for misbehavior, etc. Daniel N. Eisendrath, M.D., Chicago.

"EXPERIMENTAL PELLAGRA"

To the Editor:—The attention of this office has been called to a statement in the editorial on experimental pellagra (The Journal, Sept. 29, 1917, p. 1082) which is capable of misinterpretation.

McCollom and Pitz are quoted, correctly, as follows: "There is no reason whatever why we should assume, as Voegtlin, Goldberger, Funk and others have done, that pellagra is due to a lack of a specific unidentified dietary factor, a 'vitamin.'"

Neither Professor Voegtlin nor Dr. Goldberger has ever assumed to the exclusion of other possibilities, nor have they stated in any of their publications, that pellagra is due to a lack of a specific vitamin. This was clearly recognized, as were other possibilities; but a perusal of their published work will show that their views on this point have been interpreted erroneously. G. W. McCoy, M.D., Washington, D. C.

Director, Hygienic Laboratory, U. S. P. H. S.

"THE FULL SACRIFICE"

To the Editor:—Your editorial in The Journal, October 20, p. 1355, entitled "The Full Sacrifice," strikes home. I am guilty; and yet I cannot bow gracefully to the charge of neglecting my duty. Surely I have done no bargaining. Indeed, on numerous occasions I have expressed my willingness to do anything I am asked to do. It happens though that in years I am past 55; but in health and strength I am often taken for 40. Except for a partial plate of teeth, I am physically and mentally as fit as I ever was. And in patriotism I am not wanting, for I am American through and through. Besides, I am married to an English woman who has lost many relatives and loved ones in the present war. Now what more do I need to fire me with a spirit of service? True, my specialty is that of obstetrics; but I know other things too. I feel that a man of my experience should be given tasks commensurate with his ability to perform them; yet I am willing to let someone else be the judge of my fitness. You say, "Men of mature age have the glory of choice." I fail to see it. They seem to be denied an opportunity to serve because they are of mature age. Will you not point out a little more clearly how one beyond the age limit can make the full sacrifice?

Fred Elmer Leavitt, M.D., St. Paul.

Casualties on Steam Railways.—For the year ended Dec. 31, 1916, according to *Accident Bulletin 62* of the Interstate Commerce Commission, the total number of casualties on the steam railways of the United States was 206,723, of which 10,001 were fatal. The figures show an increase over the previous year of 1,371 in the number of persons killed and 34,835 in the number injured. Not all of these represent accidents on trains, however, as 525 persons were killed and 129,740 were injured in nontrain accidents, which means those occurring in and around shops, on boats and wharves, at stations, freight houses, engine houses, coaling stations, water stations, tracks, etc., but not accidents occurring directly in connection with operation of trains. Of the number killed in 1916 there were 2,941 employees, 291 passengers and persons carried under contract, and 6,769 other persons, including trespassers and nontrespassers. Of the persons injured, 176,923 were employees, 8,008 passengers and persons carried under contract, and 11,791 other persons.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

TRUE ANTIPERISTALSIS IN THE SMALL INTESTINE

To the Editor:—1. What is the consensus of opinion as to the possibility of true antiperistalsis in the small intestine?

2. Kindly cite recent literature on this subject.

Carl A. Dragstedt, M.S., Iowa City, Iowa.

Answer.—1. True antiperistalsis of the small intestine has so far never been observed in man or animals under normal conditions. Antiperistalsis may occur when the small intestine is exposed to the air, or when a portion of the intestine is isolated and subjected to various experimental manipulations. It would also appear that, contrary to the original observations of Mall, a portion of the small intestine that has been resected and sutured in the reversed direction may, after a lapse of several months, show normal antiperistalsis. It has also been shown that antiperistalsis, or something closely akin to it, may occur in intestinal obstruction, and possibly in certain types of stasis. Small particles, like lycopodium spores, introduced in large enemas, may reach the stomach. This has by some been interpreted as evidence of normal antiperistalsis. Boldyreff asserted that antiperistalsis of the duodenum occurred as a normal process whenever the gastric acidity exceeded from 0.25 to 0.30 per cent. But Hicks and Visher showed that the regurgitation of duodenal contents into the stomach under those conditions is not due to antiperistalsis of the duodenum. According to Alvarez, any condition that induces a motor automatism of the jejunum of a higher order than that of the duodenum will lead to antiperistalsis.

Alvarez, C. W.: The Motor Functions of the Intestine from a New Point of View, The Journal, July 31, 1915, p. 388.
Beer and Eggers: Are the Intestines Able to Propel Their Contents in an Anti-Peristaltic Direction? *Ann. Surg.*, 1907, **46**, 576
Boldyreff: The Self-Regulation of the Acidity of the Gastric Contents and the Real Acidity of the Gastric Juice, *Quart. Jour. Exper. Physiol.*, 1914, **8**, 8.
Cannon, W. B.: Movements of the Stomach and Intestines in Some Surgical Conditions, *Ann. Surg.*, 1906, **43**, 524; Peristalsis Segmentation and the Myenteric Reflex, *Am. Jour. Physiol.*, 1912, **30**, 114.
Hicks and Visher: Physiology of Stomach: Mechanism of Regurgitation of Duodenal Contents into Stomach, *Am. Jour. Physiol.*, 1915, **36**, 1.
McClure and Derge: A Story of Reversal of the Intestines, *Bull. Johns Hopkins Hosp.*, 1907, **18**, 4712.
Prutz: Transposition of Intestine, *Arch. f. klin. Chir.*, 1904, **72**.

BRUCK'S SEROCHEMICAL TEST FOR SYPHILIS

To the Editor:—Kindly publish the technic of Bruck's serochemical test for syphilis, or advise me where I can find it.

R. H. L. Bibb, M.D., Saltillo, Mexico.

Answer.—Nitric acid when added to syphilitic blood serum causes a precipitate to form. Bruck's technic is based on an acid containing, per hundred gm., 24.77 gm. of nitric acid, or, per hundred c.c., 28.48 c.c. of nitric acid with a specific gravity of 1.149. He uses 0.3 c.c. To 0.5 c.c. of clear serum, 2 c.c. of distilled water are added. This is shaken, and then 0.3 c.c. of nitric acid is added with a standardized pipet. This is shaken and permitted to stand at room temperature for ten minutes. Then 16 c.c. of distilled water at 15 C. are added and shaken slowly three or four times so as not to foam. This shaking is repeated ten minutes later, and then the tube is set aside for one-half hour. If the serum is syphilitic it shows a distinct flocculent turbidity. In twelve hours, a precipitate is piled up on the floor of the test tube. If the serum is nonsyphilitic, there is no precipitate at any time. The test is described in the *Münchener medizinische Wochenschrift*, Jan. 2, 1917, p. 25.

DISPOSAL OF COMMISSION ON RECEIVING A HIGHER ONE

To the Editor:—I received a First Lieutenant's commission in the Medical Reserve Corps, Sept. 10, 1917, which I accepted. Under date of Sept. 26, 1917, I received a Captain's commission in the Medical Reserve Corps, which I also accepted. Shall I return the First Lieutenant's commission?

F. M. V.

Answer.—No.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 13-14. Sec., Dr. T. J. Stout, Brinkley.

Arkansas: Eclectic: Little Rock, Nov. 13. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

Connecticut: New Haven, Nov. 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

Connecticut: Homeopathic: New Haven, Nov. 13. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Eclectic: New Haven, Nov. 13. Pres., Dr. J. W. Fyfe, Saugatuck.

Delaware: Wilmington, Dec. 11-13. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Jacksonville, Dec. 4-5. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

Maine: Portland, Nov. 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Maryland: Baltimore, Dec. 11. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Nebraska: Lincoln, Nov. 14. Sec., Dr. J. J. Hompes, 612 Security Mutual Life Bldg., Lincoln.

Nevada: Carson City, Nov. 5. Sec., Dr. S. L. Lee, Carson City.

New Hampshire: Concord, Dec. 10-12. Sec., Dr. W. S. Crosby, Beacon Bldg., Manchester.

Ohio: Columbus, Dec. 4-6. Sec. Pro-tem., Dr. Herbert M. Platter, 185 E. State St., Columbus.

South Carolina: Columbia, Nov. 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Dallas, Nov. 20-22. Sec., Dr. M. F. Bettencourt, Mart.

Virginia: Richmond, Dec. 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

West Virginia: Clarksburg, Nov. 21-23. Chairman, Dr. S. L. Jepson, Capitol Bldg., Charleston.

Mississippi June Examination

Dr. W. S. Leathers, secretary of the Mississippi State Board of Health, reports the written examination held at Jackson, June 19-20, 1917. The examination covered 8 subjects and included 64 questions. An average of 75 per cent. was required to pass. Of the 19 candidates examined, 15 passed and 4 failed. Eleven candidates, including 1 osteopath, were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Birmingham Medical College	(1915)	78
University of Alabama	(1917)	84, 89
Loyola University	(1916)	76
Tulane University of Louisiana (1915) 81, 84 (1917) 80, 80, 81, 85.		
Jefferson Medical College of Philadelphia ..(1916) 80;	(1917)	81
University of Tennessee	(1917)	79
University of Texas	(1916)	75
University of Virginia	(1914)	82
FAILED		
College of Physicians and Surgeons, Little Rock	(1910)	*
Chicago College of Medicine and Surgery	(1917)	72
Meharry Medical College	(1916)	67
Memphis Hospital Medical College	(1911)	61

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
Atlanta College of Physicians and Surgeons	(1907)	Georgia
Illinois Medical College	(1908)	Indiana
University of Louisville	(1887)	Texas
Tulane University ....(1891)	(1903)	Louisiana
University of Maryland	(1884)	Virginia
Memphis Hospital Medical College ....(1903)	(1910)	Tennessee
	(1912)	Arkansas
University of Tennessee	(1916)	Tennessee

* No grade given.

Virginia June Examination

Dr. J. W. Preston, secretary of the Virginia State Board of Medical Examiners, reports the written examination held at Richmond, June 19-22, 1917. The examination covered 8 subjects and include 80 questions. An average of 75 per cent. was required to pass. Of the 65 candidates examined, 60 passed and 5, including 1 osteopath, failed. Eleven candidates, including 1 osteopath, were licensed through reciprocity. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Howard University ....(1916) 82;	(1917)	88
Johns Hopkins University	(1916)	83
North Carolina Medical College	(1917)	86, 86
Ohio State University	(1917)	87
Hahnemann Medical College of Philadelphia	(1917)	87
Jefferson Medical College of Philadelphia	(1917)	90
Medical College of Virginia (1916) 78; (1917) 75, 75, 75, 75, 77, 77, 78, 78, 78, 79, 79, 80, 81, 81, 81, 82, 82, 82, 83, 83, 83, 83, 85, 85, 85, 85, 85, 86, 86, 86, 88, 88, 88, 88, 89, 89, 90, 90, 93.		
University of Virginia (1915) 87; (1917) 81, 86, 88, 89, 89, 90, 90, 90, 92, 93.		
Meharry Medical College	(1917)	77
FAILED		
Medical College of Virginia ...(1912) 74; (1916) 56; (1917) 72, 72		

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
George Washington University	(1907)	Dist. Colum.
Atlanta Medical College	(1916)	Georgia
Tulane University of Louisiana	(1906)	Louisiana
College of Physicians and Surgeons, Baltimore	(1909)	N. Carolina
	(1912)	W. Virginia
University of Maryland	(1898)	W. Virginia
University of Michigan Homeo. Med. School	(1910)	Indiana
Lincoln Memorial University	(1913)	Tennessee
Vanderbilt University	(1909)	N. Carolina
University of Moscow	(1906)	Russia

Wisconsin June Examination

Dr. J. M. Dodd, secretary of the Wisconsin State Board of Medical Examiners, reports the practical and written examination held at Milwaukee, June 26-28, 1917. The examination covered 18 subjects and included 100 questions. An average of 75 per cent. was required to pass. Of the 45 candidates examined, 43, including 6 osteopaths, passed and 2 failed. Fourteen candidates, including 1 osteopath, were licensed through reciprocity. One candidate was granted a reregistration certificate. The following colleges were represented:

College	Year Grad.	Per Cent.
PASSED		
Chicago College of Medicine and Surgery (1914) 79.1;	(1915)	78.1
(1916) 77.6, 81.3, 82.1, 85.3, 89.4.		
Hahnemann Medical College of Chicago	(1891)	82.3
(1917) 83.6, 87.		
Loyola University ....(1915) 78.6;	(1917)	76.6
Northwestern University	(1914)	82.2
Rush Medical College (1889) 86.2; (1915) 85.7, 87.8;	(1916)	86.8
(1917) 82.3, 87, 87.7, 88.9, 89.5, 91.6.		
University of Illinois	(1917)	86.8
Johns Hopkins University	(1916)	88.8
Washington University	(1917)	91.4
Columbia University	(1916)	86
University of Cincinnati	(1917)	86.7
University of Pennsylvania	(1917)	85.4
Marquette University	(1917)	80.2
80.6, 80.7, 80.9, 83.3, 86, 89.2.		
University of Christiania	(1915)	83.2
FAILED		
Chicago College of Medicine and Surgery ....(1912)*;	(1915)	70.3

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
College of Physicians and Surgeons, Chicago (1903)	(1912)	Illinois
Northwestern University ....(1909) N. Dak.	(1911)	Illinois
Rush Medical College	(1912)	Illinois
University of Illinois ....(1914)	(1915)	Illinois
Louisville Medical College	(1905)	Arkansas
University of Minnesota	(1916)	Minnesota
Ohio State University College of Medicine	(1915)	Ohio
University of Pennsylvania	(1897)	Penna.
Wisconsin College of Physicians and Surgeons	(1909)	N. Dakota
University of Toronto	(1906)	N. Dakota

* No grade given.

Oklahoma July Examination

Dr. R. V. Smith, secretary of the Oklahoma State Board of Medical Examiners, reports the oral and written examination held at Oklahoma City, July 10-11, 1917.. The examination covered 11 subjects and included 100 questions. An average of 70 per cent. was required to pass. Of the 21 candidates examined, 18, including 5 osteopaths, passed, and 3, including 1 osteopath, failed. Twenty-five candidates, including 4 osteopaths were licensed through reciprocity and 4 candidates were granted reregistration certificates. The following colleges were represented:.

College	Year Grad.	Per Cent.
PASSED		
University of Alabama	(1913)	76
Northwestern University	(1916)	87
University of Illinois	(1917)	86
University of Louisville	(1917)	81
Tulane University of Louisiana	(1915)	91
University of Maryland	(1917)	82
Washington University	(1916)	86
University of Oklahoma ....(1915) 78;	(1917)	80
Jefferson Medical College	(1905)	85
Meharry Medical College	(1917)	82
Vanderbilt University	(1916)	81
Fort Worth School of Medicine	(1917)	84
FAILED		
St. Louis College of Physicians and Surgeons	(1888)	70
Memphis Hospital Medical College	(1913)	68

College	Year Grad.	Reciprocity with
LICENSED THROUGH RECIPROCITY		
University of Arkansas ....(1913) (1913) (1913)	(1915)	Arkansas
University of Louisville ....(1898)	(1916)	Kentucky
Louisville Medical College	(1904)	Arkansas
Tulane University of Louisiana	(1897)	Arkansas
Baltimore University	(1899)	W. Virginia

Barnes Medical College	(1899) Arkansas; (1909)	Missouri
National University of Arts and Sciences	(1912)	Missouri
St. Louis College of Physicians and Surgeons	(1908)	Missouri
St. Louis University	(1907)	Missouri
University Medical College of K. C.	(1913)	Missouri
Washington University	(1903)	Missouri
University of Nashville	(1907)	Tennessee
University of Tennessee	(1892)	Arkansas
Memphis Hospital Medical College	(1912)	Arkansas
University of Texas	(1912)	Texas
Medical College of Virginia	(1906)	Virginia

Medicolegal

Business Corporation and Manager Giving Medicine

(Godfrey vs. Medical Society of New York County (N. Y.), 164 N. Y. Supp. 846)

The Supreme Court of New York, Appellate Division, Second Department, reverses a judgment for $2,500 rendered in favor of the plaintiff, who asked damages for an alleged malicious prosecution for having unlawfully practiced medicine without a license, of which he was acquitted. The court says that it regards this case as one of very great importance, as being likely, if it should stand as a precedent as it was, to lead to the opening of many quack sanatoriums and "cure-all" institutes under the guise of business corporations or registered trade-names of individuals not licensed physicians.

The evidence in this case showed that the plaintiff, who was not a physician, had organized, under the business corporations law of New York State, the "Gatlin Institute of New York, Incorporated, . . . to maintain and operate institutes for the cure of the liquor and drug habit." He became and acted throughout as its manager. He purchased from the so-called parent corporation in Chicago the right to use the so-called "Gatlin treatment" for the cure of the drink habit, which consisted for the most part in the taking of a certain liquid medicine and pills, the ingredients of which were unknown to the plaintiff or to any one connected with the New York corporation, the articles being obtained from the said parent corporation or plant. The trial justice properly charged that the New York corporation could not practice medicine; that is, that in that respect it stood the same as an individual. He also properly charged the jury that if the plaintiff, as the manager of the corporation, aided and abetted it in so practicing medicine, he was equally guilty with the corporation itself, which of course is in strict accord with the provisions of Section 2 of the penal law. Still, the court thinks the trial was conducted on an entirely mistaken theory of the law, and that, on the correct theory thereof, probable cause for the criminal prosecution was clearly established. The trial justice conducted the trial and submitted the case to the jury on the theory of law that, if the plaintiff, as manager of the New York corporation, had it treat its patrons, although in its own name, by giving medicine only "on the advice and counsel, or prescription, in the particular case, of a duly licensed physician, it was not practicing medicine, and neither the corporation nor the plaintiff would be guilty of violating the law," which prohibits such practice by any person other than a licensed physician. That the treatment amounted to the practice of medicine by some one cannot be doubted.

Even assuming that the law of the case was correctly declared by the trial justice, as above summarized, the court thinks that probable cause was established for the criminal prosecution because the evidence demonstrated that the advice or prescription of a licensed physician, on which the plaintiff claimed the institute only treated, was a mere sham and pretense. In all instances such prescription was merely treatment by the Gatlin method. There was in the prescription no modification or direction as to time or quantity of the dose, or anything of the sort. The medicine was a secret. Neither the plaintiff nor the physician knew its ingredients. The giving of a prescription by a physician must, of necessity, involve the exercise of judgment as to the particular case, and as well some scientific knowledge of the nature of the medicine prescribed. Here the physician could have possessed no such knowledge, and even the plaintiff, the manager, did not have it. Hence such a prescription was a mere sham and pretense.

On the cross-examination of the physician of the institute, an inquiry to show that he made no analysis or other scientific examination to ascertain the ingredients of the medicine was excluded. This proof was entirely competent to show that the prescriptions given by the physician were pretenses, based on no scientific knowledge.

The court regards the verdict here as directly against a sound and necessary public policy, and is convinced that it should not stand; so the judgment is reversed, with costs; and the complaint dismissed, with costs.

Meaning of the Terms "Physician" and "Medicine"

(People ex rel. Gage vs. Siman et al. (Ill.), 115 N. E. R. 817)

The Supreme Court of Illinois says that a "physician" is one versed in or practicing the art of medicine, and the term is not limited to the disciples of any particular school. The term "medicine" is not limited to substances supposed to possess curative or remedial properties, but has also the meaning of the healing art—the science of preserving health and treating disease for the purpose of cure—whether such treatment involves the use of medicinal substances or not. In common acceptation, any one whose occupation is the treatment of diseases for the purpose of curing them is a physician, and this is the sense in which the term is used in the medical practice act.

The term is not used in any different sense in Section 15 of the vital statistics act, which requires every physician, midwife, undertaker and sexton to register his or her name, address and occupation with the local registrar of the vital statistics district in which he resides. Section 7 of the act directs that the required certificate of death shall be made and signed by the legally qualified physician, if any, last in attendance. The term "legally qualified physician" in this connection is not different in meaning from the term "physician" in Section 15. Each means a physician authorized to practice medicine. The qualification of the physician is only incidentally connected with the subject-matter of the act, which is vital statistics. The state authorizes osteopathic physicians to treat human ailments without the use of medicine and without performing surgical operations, and if a patient dies he cannot be said to have died without medical attendance, so as to authorize the coroner or local registrar to make the certificate of death.

A proviso to Section 3 of the medical practice act declares that only those who are authorized to practice medicine and surgery in all their branches shall call or advertise themselves as physicians or doctors. This proviso was regarded by the counsel for the respondents as sustaining the position that only persons licensed to practice medicine and surgery in all their branches are authorized to issue certificates of death. The proviso is somewhat inconsistent with the provision that treatment for any physical ailment shall constitute the practice of medicine and which authorizes such treatment by persons not authorized to practice medicine and surgery in all their branches. It does not, however, declare that persons treating physical ailments without the use of medicine and without performing surgical operations are not physicians, but only that they shall not call themselves physicians or advertise themselves as such. Whether the legislature can constitutionally prohibit one of these classes from publicly assuming the title of physician or doctor was a question discussed in the brief of the relator which the court does not find it necessary to decide.

This appeal was brought directly to this court on the ground that if the word "physician," in Sections 7 and 15 of the vital statistics act, means only those who are authorized to practice medicine and surgery in all their branches, then to that extent those sections are unconstitutional, and that the proviso to Section 3 of the medical practice act is unconstitutional; but the court does not find it necessary to decide those questions, since it holds that the word "physician," in the vital statistics act, is not limited to any particular school of medicine, but includes osteopathic physicians.

cessation of feeding. I have applied this form of rest cure in many cases, with *restitutio ad integrum*, in the majority of them, and certain relief in all cases, except in malignancy.

DISCUSSION

Dr. Herbert Whitney, Denver: Nothing has been of so much benefit in my practice as the proper observation of the principles of rest and exercise in the treatment of patients with chronic disease.

Dr. H. A. Smith, Delta: The chiropractor, the dietist and the food cranks are getting results in cases that are slipping away from the practitioner of medicine because he does not do one of two things, namely, he either does not go to the trouble of making a diagnosis, or fails to instruct the patient in the matter of diet. If the doctor will regulate the diet of these patients, tell them how much to eat, what to eat, how many meals they should have a day, and the quantity of food for each meal, he will get results in the class of cases in which nutrition is disturbed indirectly.

Dr. M. R. Fox, Sterling: If we paid more attention to rest and exercise, and used a little more "horse-sense," we would get better results.

Dr. Robert Levy, Denver: For many years, superalimentation has been practiced by some of the very best and most reputable authorities in the treatment of tuberculosis. In many instances superalimentation has developed a desire for food, and the patients have improved.

Dr. Julius L. Mortimer, Denver: An effort should be made so to prepare food that it will be inviting and palatable to the patients. I have seen patients eat a great deal more because the food was prepared and served in a most inviting manner, thus stimulating their appetites.

Dr. Kate Lindsay, Boulder: Allen and Josslyn have obtained excellent results in diabetic cases with their methods of treatment simply because they have treated patients individually.

Acute Cholecystitis

Dr. Z. H. McClanahan, Colorado Springs: Drainage is now being employed in a progressively lessening number of cases of gallbladder disease, while cholecystectomy is gaining in frequency of employment in proportionate ratio. As the most frequent site of infection has been shown to be the gallbladder wall, this is a rational change, and cholecystectomy is the rational treatment in the absence of certain contraindications. Pancreatitis contraindicates cholecystectomy. Granting that cholecystectomy is the ideal procedure, drainage still has a field of usefulness in the superlatively acute cases in which the immediate prevention of mortality is of first consideration.

Cholecystectomy Versus Cholecystostomy

Dr. F. N. Cochems and Dr. A. J. Bender, Salida: The definite indications for cholecystectomy are all cases of chronic cholecystitis, injuries, ulcerations, perforations and gangrene of the gallbladder, persistent fistulas and primary malignancy. The advantages are easier convalescence, fewer adhesions, greater percentage of recoveries, diminished recurrences and lower percentage of mortality. The disadvantages are the destruction of the special function of the gallbladder, overlooking common duct stone or stricture. Cholecystostomy would be the operation of choice in many cases of acute cholecystitis, stones in the hepatic and common ducts, acute pancreatitis and when gallstones are accidentally discovered during the course of operations on other abdominal organs.

DISCUSSION

Dr. H. S. Henderson, Grand Junction: I think the pendulum is swinging too far backward. Cholecystectomy is performed more frequently than it should be. Cholecystectomy is indicated when the gallbladder is badly damaged, when its mucous membrane is no longer functioning. In malignant disease the gallbladder should be removed; but the indiscriminate removal of gallbladders because they have stones in them or are inflamed is not good surgery.

Dr. Leonard Freeman, Denver: The consensus of opinion among surgeons today is that cholecystectomy is better than cholecystostomy. It is better to take out the gallbladder than to drain it, provided we can take out the gallbladder with safety to the patient, and that the common bile duct is not obstructed or going to become obstructed. There are cases in which the gallbladder is so badly involved that we are willing to run the risk of taking it out; but such cases are not extremely common. If a patient's condition is such that an attempt to remove the gallbladder increases the risk, the gallbladder should not be touched. If the common bile duct or the cystic duct is obstructed, it should be taken out.

Dr. J. G. Hughes, Greeley: When a drainage operation because of the presence of infection is performed, the chances of healing and recovery of the patient are materially enhanced by the use of autogenous vaccines.

(To be continued)

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Evansville, Sept. 26-28, 1917

The President, Dr. John H. Oliver, Indianapolis, in the Chair

SYMPOSIUM ON DISEASES OF THE GALLBLADDER

Diagnosis

Dr. A. C. Kimberlin, Indianapolis: Owing to a better knowledge of pathology, we have changed our ideas very materially as to the manner in which the infection reaches the gallbladder. We now accept the theory that in most instances it is carried through the blood stream. A certain periodicity in the attacks, and local tenderness may or may not be conspicuous. Neither is jaundice always present. We must know more of the pathology. We do not give enough time to a careful study and analysis of the clinical history.

Medical Treatment

Dr. Charles Sowder, Indianapolis: I would emphasize the necessity for active preventive treatment during the course of and following acute infectious processes which we have determined must furnish the active cause. If we can maintain a normal flow of healthy bile, and by medicinal measures tend to keep the gallbladder sterile, we have taken a long step forward in the prevention of gallbladder disease. We can lay down no hard and fast rule to guide us in treatment. In general, if there is obstruction of the cystic duct resulting in enlargement of the gallbladder, or if repeated attacks of pain or disturbance of digestion render the patient unable to follow his usual vocation, surgical aid should be given. All cases of cholelithiasis with recurring attacks of cholecystitis or pericholecystitis should be subjected to immediate surgical interference. When acute cholecystitis can be ruled out, at least six months' medicinal treatment should be instituted before surgical measures are considered.

Cholecystectomy Versus Cholecystotomy

Dr. H. H. Martin, Laporte: When Rosenow published the results of his experimental work on gallbladder infections, the profession began to realize the limitations of simple drainage of the gallbladder, and to appreciate the cause for so many surgical failures in those cases in which success was legitimately anticipated. Rosenow proved that in the majority of cases, and probably in all, the infection takes place by way of the circulation direct, and that it is the gallbladder walls, and not the bile or the gallbladder mucous membrane, that is primarily involved. Consequently simple drainage fails to relieve many of these patients. Every pathologic gallbladder demanding operative interference should be removed, provided this operation does not add to the mortality rate of a cholecystectomy over a cholecystotomy.

Dr. H. A. Duemling, Fort Wayne: In my opinion, both operations are valuable. Some cases require simply incision and drainage; other patients as certainly must have the gallbladder removed to regain health. We should be very careful in obtaining the history of the patient so that we may make a correct diagnosis; patients, however, are cured not by scientific examination, but by scientific treatment. I do not believe that there ever has been a case of recurrence of stone. Stones do not reform—they are overlooked. This fact led to the exploration of the ducts—a tremendous step forward, and then a new operation appeared—cholecystotomy. Finally, the removal of the gallbladder was advised, but we have not yet reached our goal.

DISCUSSION ON THE GALLBLADDER

Dr. Thomas B. Noble, Indianapolis: Gallstone disease, as it is commonly referred to, is simply an end-product, an ultimate outgrowth of some antecedent happening or accident in the way of infection, or fault in the habit of life of the individual. Cholecystectomy and cholecystotomy are both valuable procedures. They each have their specific indications. I do not believe that every gallbladder requiring operative interference should be removed. The important thing is drainage—in every case.

Dr. Charles Stoltz, South Bend: There is no doubt that stones do recur. Stones form in the hepatic and also in the common duct, and we know of cases in which the biliary ducts are filled with stones. The gallbladder should not be removed in every instance. In many cases drainage offers rest for the mucosa and submucosa of the common ducts as well as the biliary ducts.

Dr. J. Rilus Eastman, Indianapolis: It is mischievous to take out a gallbladder simply because it is an attractive operative procedure. If we had to deal with an infection of the gallbladder alone, this would be a very easy question to solve; but I have never seen a badly infected gallbladder that was not associated with infections of the ducts, or with infection of the pancreas. I believe we shall decide more and more to utilize the gallbladder for drainage in such cases.

Dr. Maurice Rosenthal, Fort Wayne: Unfortunately those cases of biliary duct and gallbladder infection which require excision of the gallbladder are the very cases which really require drainage of the ducts. It is quite possible and just as easy to drain the gallducts after removing the gallbladder as to drain them through the gallbladder. Passing a small tube through the stump accomplishes drainage of the ducts very satisfactorily.

Dr. H. O. Pantzer, Indianapolis: The term "gallstone disease" is not comprehensive enough, and represents only a small part of gallbladder disease. Gallstones may be retained a long time without causing any trouble if the gallbladder is normal. It is futile to attempt any medication in cases of gallbladder disease, for living typhoid germs have been found in the gallbladder twenty, even fifty, years after the attack of typhoid.

Dr. A. S. Jaeger, Indianapolis: I do not think all inflammations of the gallbladder are infective, or that this is Rosenow's belief. Undoubtedly the gallbladder is infected in the majority of cases, owing to bacterial activity; but a nonspecific inflammation of the gallbladder will give the same results.

Complications and End-Results of Tonsillectomy and Adenectomy

Dr. J. W. Iddings, Lowell: Specialists in laryngology have a duty to perform in educating the laity and the profession that the tonsil and adenoid operation is not a minor operation, but one which may be attended with severe, even fatal, consequences; that definite indication should be present before it is advised or attempted, and that it should be undertaken with the same care, skill and caution displayed in any major operation.

DISCUSSION

Dr. G. W. Spohn, Elkhart: The technic is not so important as the results. It matters not so much how the tonsils and adenoids are removed, if the work is done correctly, thoroughly, expeditiously and with no injury to the adnexa. The end-results of such work are satisfactory to both patient and physician.

Dr. W. A. Hollis, Hartford City: The danger of pulmonic infection through aspiration of infectious material, or from the ether, or the danger of suffocation from inhalation of solid particles, is greatly exaggerated. If the operation is done in the Trendelenburg position, it is impossible to have such an accident if one is a careful operator.

(*To be continued*)

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Medical Sciences, Philadelphia

October, CLIV, No. 4

1 *Utilization of Immune Response in Renal Tuberculosis. E. Bonime, New York.—p. 469.
2 *Pulse Pressure Test in Preoperative Estimation of Reserve Strength of Cardiovascular System. B. Z. Cashman, Pittsburgh.—p. 476.
3 *Acute Appendicitis; Analysis of Five Hundred Cases. F. Beekman, M. K. Smith and S. Everingham, New York.—p. 490.
4 Two Cases of Congenital Persistent Acroasphyxia in Infants. N. Toomey, Iowa City, Iowa.—p. 500.
5 Anxiety Neuroses. F. R. Fry, St. Louis.—p. 506.
6 Bronchiolitis Obliterans Following Inhalation of Acrid Fumes. J. H. Wagner, Pittsburgh.—p. 511.
7 Syphilis of Nervous System in Some of Its Clinical and Pathologic Manifestations. W. G. Spiller, Philadelphia.—p. 523.
8 *Researches in Regard to Coagulo Reaction of Syphilitic Serum. H. Uemura, Japan.—p. 533.
9 *Nervous Symptoms of Polycythemia Vera. H. A. Christian, Boston.—p. 547.
10 *Heat Stroke; Report of One Hundred and Fifty-Eight Cases from Cook County Hospital, Chicago. H. Gauss and K. A. Meyer, Chicago.—p. 554.
11 Electrocardiographic Study of Heart Showing Ectopic Auricular Contractions, with Special Reference to Influence of Vagus Nerves on Ectopic Focus. D. Luten, St. Louis.—p. 564.
12 Etiologic Factors of Acne Vulgaris. A. Strickler, Philadelphia.—p. 579.
13 *Chronic Heart Block. Treatment by Alpha-Iodin. J. M. Blackford, Seattle, Wash., and F. A. Willius, Rochester, Minn.—p. 585.
14 Vitiligo and Syphilis of Central Nervous System. E. M. Auer, Indianapolis.—p. 592.

1. **Immune Response in Renal Tuberculosis.**—Bonime's paper may be summarized as follows: The prognosis in renal tuberculosis up to the present has been unfavorable under the present day method of treatment. Nephrectomy as an operation for the relief of the patient suffering from tuberculosis of the kidney is a failure, for it fails to remove the focus of infection outside of the kidney, leaving the patient liable to extension of the infection to the remaining kidney from the same focus. The tuberculin treatment of renal tuberculosis has not been as satisfactory as the tuberculin treatment of other forms of tuberculosis, (1) because of the inability to make an early diagnosis; (2) because of the production of early damage before the tuberculin treatment was instituted; (3) as a result of the failure to recognize the important rôle that mixed infection plays in the production of symptoms and pathologic processes. Enough has been shown, however, with tuberculin treatment of renal tuberculosis, in fact, to make it almost certain that were it instituted before permanent damage has resulted—in other words, early in the disease—the prognosis of renal tuberculosis would have a far more favorable aspect. Early diagnosis in renal tuberculosis can be accomplished through the tuberculin test alone. Its more frequent use in early symptoms referable to an indefinite lesion anywhere in the urinary tract is absolutely essential to the more hopeful treatment of renal tuberculosis.

2. **Pulse Pressure Test of Cardiovascular System.**—Pulse pressure readings were used by Cashman as a means of estimating the ability of the circulatory system to withstand strain, for it is the additional strain of the surgical ordeal that is responsible for circulatory exhaustion or collapse. His plan was to subject the patient to the strain of work and observe not only the systolic presssures but the diastolic and pulse pressures as well, for the pulse pressure is the head of pressure which is actually driving the blood through the circulatory system, and inasmuch as the cardiovascular system maintains pulse pressure when an additional strain is imposed on it, so much is efficient circulation maintained. The chief value of the test is in the cases in which the force and rhythm are regular or but slightly irregular, the type of case in which the ordinary method of examination does not throw light on the condition of the circulatory apparatus, and the type of case in which surgeons are

liable to blunder. This test signifies the ability of the cardiovascular system to respond to strain at the time the test is made, and it does not signify what portion of the cardiovascular system is at fault. The condition may be due to a permanently damaged heart muscle or cardiovascular system, which is working with very little reserve and which may fail if subjected to sudden strain. On the other hand, the condition may be a temporary one, due to toxemia, exhaustion, or fatigue, but nevertheless this is the type of case that should not be subjected to additional severe strain. How frequently women are worn out from multiple pregnancies, toxemias, and chronic infections suffering from chronic fatigue and exhaustion. If the histories of these patients are gone into carefully it will be found that they tire readily, suffer from dizziness, dyspnea on exertion, weak spells, or slight swelling of the feet and ankles, although the heart appears to be normal by the ordinary methods of examination. These are the patients who have stormy convalescence after abdominal section. Patients with little reserve and who respond so poorly to light strain should be subjected to neither a severe operation nor a cross-country run as an elective procedure. Cashman describes his method of procedure in detail.

3. **Acute Appendicitis.**—There were thirty-four deaths, or a mortality of 6.8 per cent., among the 500 cases analyzed by the authors. Twice as many died who were operated on the third day after the onset of symptoms as on any other day of the illness. The mortality of those under 10 years and over 50 is 23 per cent. as opposed to a mortality of 4.7 per cent. for those between. Complications were found in 151 persons, or 30 per cent. There were 107 cases of appendicular abscess, or 21 per cent. The mortality was 5.7 per cent. There were forty-five instances of diffuse peritonitis, or 9 per cent. Twenty-one, or 47 per cent., of these patients died. Fecal fistula occurred twenty-four times, an incidence of 5 per cent.; four patients died, a mortality of 17 per cent. Pneumonia occurred twelve times, an incidence of 2.5 per cent. There were four fatalities in the series, or 33 per cent. Secondary peritoneal abscess occurred in eleven instances, being present in one patient at operation and ten times as a sequel. Three of these were subphrenic abscesses. Of the eleven cases, four patients died, a mortality of 36 per cent. Only two cases of ileus were found: one was due to adhesions; the other was a paralytic ileus.

A history of previous attacks was obtained in one fourth of the cases. Vomiting was mentioned in the histories of four fifths of the cases. Five per cent. more had nausea without vomiting. Constipation was five times as frequent as diarrhea. A blood count was recorded in 377 of the cases. Neither a normal blood count nor a very high one rules out appendicitis, although such counts are comparatively rare. The mortality was higher among the two extremes and most favorable with a moderate leukocytosis. The relation of the numerical count to the differential count did not appear to have any prognostic significance. Of 117 perforated cases seventeen died, a mortality of 15 per cent. Of 138 cases with gangrene and no perforation nine died, a mortality of 6.5 per cent. Of 180 suppurative cases without either perforation or gangrene four patients died, a mortality of 2 per cent. Thirty per cent. of perforated, 16 per cent. of gangrenous and 10 per cent. of suppurative cases developed abscesses. Twenty-four per cent. of perforated, 8 per cent. of gangrenous, and 1 per cent. of suppurative developed diffuse peritonitis. The incidence of all complications in perforative cases is 61 per cent., in gangrenous 38 per cent., and in suppurative 22 per cent. It appears from this that the danger of a diffuse peritonitis is greater when there is a perforation than when the inflammation spreads through the appendicular wall, for in the latter case there is a better chance of the peritoneum localizing the disease. There were twenty cases, or 4 per cent., in which it was not possible to remove the appendix. All but two of these were in abscess cases. Three of the twenty patients died, a mortality of 15 per cent.

8. **Coagulo Reaction of Syphilitic Serum.**—Uemura is convinced that the coaguloreaction is highly characteristic in the case of syphilitic serum, especially when the elaborated

case of syphilitic serum, especially when the elaborate method described by him is applied, and the sources of possible mistakes are avoided. In many cases this test is said to be distinctly superior to the Wassermann reaction. It is hardly probable that the coaguloreaction will finally supersede the Wassermann reaction; but it does seem calculated both to furnish scientific research with valuable data in regard to the transformation of serum as wrought by syphilis, and also to facilitate the diagnosis of doubtful cases of syphilis, possibly also of certain apparently similar conditions.

9. **Nervous Symptoms of Polycythemia Vera.**—Of ten cases observed by Christian, all but two showed very definite nervous symptoms, and in most the nervous disturbances were the chief cause of the patient's discomfort. These symptoms varied in duration from a few days to many years. The most frequent symptoms were headache and dizziness. Other common symptoms were disturbances of vision, such as easily induced fatigue of the eyes, blurring of vision, scotomas often scintillating, transient blindness, hemianopsia, and diplopia. Disturbances of sensation, particularly paresthesia, occurred. In several patients motor disturbances, such as paresis and paralysis, were seen. The case in which these were transient and recurred is of special interest. The nervous symptoms in some of the patients were sufficiently focal in character to lead to the diagnosis of brain tumor. One case was of special interest in this connection, for during a period of ten years, during which the patient was seen repeatedly by ophthalmologists and neurologists, brain tumor often was suggested as the cause of his symptoms, and no one seems to have suspected the polycythemia until he was admitted to the hospital, and even when the blood count was known it was still thought possible that some of the focal symptoms were due to a cerebral tumor.

Heat Stroke.—All patients with a temperature of 103 F. or over were immediately placed in a tub of tap water, the level of which was just high enough to cover the body except the head, which was supported in a hammock packed with ice. Vigorous friction was applied to the entire body by four or more persons; ice was freely added to the water, the friction being constantly maintained; the temperature was taken rectally every minute. When the temperature reached 102 F. the patient was removed from the bath, wrapped in sheets or blankets, and returned to the ward. Generally 102 F. was reached in ten to thirty minutes. When the patients were returned to the wards their temperature usually continued to fall, frequently reaching subnormal—95 to 97 F. Cardiac stimulants were given freely, strychnin, sodium caffein benzoate, digitalis, strophanthus; an ice bag was placed at the head and chipped ice was given by the mouth. For subnormal temperature external heat was applied. For recurrences in temperatures up to 103, cold packs and alcohol sponges were given; above 103 the patient was again given a cold water friction bath. It was observed that recurrent temperatures could not be reduced as easily as the initial high temperature, and in a few instances the temperature continued to rise in spite of prolonged friction in cold water. For restlessness and convulsions sedatives were used; morphin, chloral hydrate, scopolamin, the bromids and mechanical restraints.

13. **Alpha Iodin in Chronic Heart Block.**—During the examination of a case of chronic heart block Blackford and Willius attempted to increase the idioventricular rate by the administration of large doses of alpha iodin, the active constituent of the thyroid which Kendall has isolated recently. The administration of this drug has been followed in four cases by marked improvement in the patients' nutrition, associated with increased ventricular rate and cessation of the Stokes-Adams syndrome, though one patient has since died. One-half milligram alpha iodin was administered daily. Alpha iodin quickens the idioventricular rate in complete heart block. This is followed by marked subjective relief to the patient. The drug must be pushed to the tolerance of the patient and the dose then reduced to the largest amount that can be taken without discomfort. The auricular rate increases much earlier and to a much higher figure proportionately than the ventricular rate.

American Journal of Public Health, Boston

October, VII, No. 10

15 Red Cross and Relief in Civilian Communities. F. R. Johnson, Boston.—p. 803.
16 Simple Medium for Rapid Differentiation of Typhoid and Paratyphoid Bacilli. I. J. Kligler, New York.—p. 805.
17 Large Concentration Camp in Its Relation to Civilian Community. C. E. Simpson, Lowell.—p. 806.
18 Graphical Study of Epidemiology of Poliomyelitis. T. G. Hull, New York.—p. 813.
19 Effect of Atmospheric Conditions on Fatigue and Efficiency. C. E. A. Winslow, New Haven, Conn.—p. 827.
20 Missing Links in Chain of Evidence Concerning Occupational Diseases. W. H. Rand, Washington, D. C.—p. 835.
21 Milking Machine as Factor in Production of Sanitary Milk. G. L. A. Ruehle, R. S. Breed and G. A. Smith, Geneva, N. Y.—p. 840.

American Journal of Orthopedic Surgery, Boston

Octotber, XV, No. 10

22 Place of Orthopedic Surgery in War. J. E. Goldthwait, Boston.—p. 679.
23 *Orthopedic Problems in After-Treatment of Infantile Paralysis. R. W. Lovett, Boston.—p. 687.
24 *Patellar Bone Graft in *Excision of Knee. H. P. H. Galloway,* Winnipeg, Canada.—p. 704.
25 Injury of Musculospiral Nerve. S. L. McCurdy, Pittsburgh.—p. 711.
26 Infraction of Head of Second and Third Metatarsal Bones; Report of Cases. W. C. Campbell, Memphis, Tenn.—p. 721.

23. **After-Treatment of Infantile Paralysis.**—Lovett believes that if a patient is not paralyzed in all four extremities, as well as back and abdomen, that he can be made to walk in some form or other; that is to say, that if he has one good arm and one leg with some power in it, it does not seem to matter how bad the contractions and deformities may be, so far as walking is concerned, because most of them, except scoliosis, can be remedied so that the patient can get his legs under him. Cases with general involvement of one or both legs, some paralysis perhaps of the abdomen, and perhaps the total loss of one or two muscles, persisting as total paralysis about three months after the attack, belong in the class of possible recovery. The longer tenderness lasts, the more slowly improvement begins, and in these cases the whole scale seems to be set further along. The more erratic and irregular the distribution of the paralysis, the better chance there seems to be for improvement. The most unfavorable cases seem to be those in which there is a pretty complete loss of power on both sides below a definite level. Cases which have a considerable amount of total paralysis persisting after two or three months do not seem, as a rule, to belong in the class of possible complete recovery. Paralysis of the deltoid is a serious proposition, but complete recovery may take place, especially with the use of the platform splint. Paralysis of the abdomen is very frequently overlooked, but, if supported by corsets from the outset, is, in Lovett's opinion, in most cases, amenable to treatment.

24. **Patellar Bone Graft in Knee Excision.**—Galloway uses the patella as a means of assisting fixation and promoting bony union in cases of knee resection. After the joint is exposed a thin flap of bone is raised from the side of each condyle and turned upward, being kept out of the way, if necessary, by a temporary suture or two. Corresponding raw surfaces are created on each side of the head of the tibia, but in the case of this bone the bony flap is immediately cut away. The lower end of the femur and upper end of the tibia are then sawed off in such a plane that when brought together the bones will fit with accurately apposed plane surfaces when the leg is flexed about 15 degrees in relation to the thigh, the direction of the saw cut being further planned so as to secure apposition without any greater lateral deviation of the leg than is present in the sound limb. Only a thin slice of bone should be taken at first, so that the plane of the cut can be altered by the removal of further thin slices should it be found necessary to do this in order to secure an ideal relation of the leg to the thigh. While an assistant steadies the upturned patella by seizing with a lion-jaw forceps the soft tissues in which it is embedded, Galloway next removes the posterior half of the patella with the saw, and a corresponding flat surface is created with the same instrument on the front of the femur and tibia. After bringing the knee into the extended position and accurately fitting the bones together, a small incision is made through the skin on each side of the tibial head, about 1½ inches below the free margin of the bone, through which are driven two 5-inch wire nails in such a direction as to cross each other and nail the bones securely together. The patella is then placed on the bed prepared for it and nailed across the front of the joint, its upper half in contact with the femur and its lower half in contact with the tibia, thus forming a solid bony bridge across both bones. The flaps of bone raised from the femur are then brougth into contact with the raw lateral surfaces on the head of the tibia. With a running suture of catgut, the deeper soft tissues are quickly brought together, the redundant tissues about the center of the flap being removed if found advisable. Plaster is applied to the leg and thigh separately, these two parts of the lower extremity being then connected by three iron brackets which span the region of the joint and permit subsequent dressing if required.

Archives of Diagnosis, New York

July, X, No. 3

27 Study of Vasomotor Efficiency. G. W. Norris and F. F. Lane, Philadelphia.—p. 233.
28 Rachicentesis and Spinal Fluid. J. H. Barach, Pittsburgh.—p. 239.
29 Inadequacy of Present Classification of Pulmonary Tuberculosis. W. C. Voorsanger, Los Gatos, Calif.—p. 251.
30 Mechanism of Mental Torticollis. L. P. Clark, New York.—p. 257.
31 Diagnosis and Prognosis of Urinary Stone in Infant and Child. A. N. Collins, Duluth, Minn.—p. 259.
32 Cardiospasm in Infancy. L. Kerr, Brooklyn.—p. 269.
33 Pitfalls in Diagnosis in Pediatric Practice. G. R. Pisek, New York.—p. 275.
34 Therapeutic Diagnosis of Amebic Abscess of Liver. W. Allan, Charlotte, N. C.—p. 281.
35 Turning Test in Appendicitis. S. C. Blaisdell, Brooklyn.—p. 285.
36 Abdominal Pain; Its Differential Diagnosis. R. F. Ives, Brooklyn.—p. 286.

Boston Medical and Surgical Journal

October 4, CLXXVII, No. 14

37 Treatment of Gastric Hyperacidity and Hypersecretion. W. F. Boos, Boston.—p. 469.
38 *Cerebrospinal Fluid in Anterior Poliomyelitis; Report on One Hundred and Eight Cases. W. Overholser, Westboro.—p. 480.
39 Dr. Samuel G. Howe and Beginning of Work for Feebleminded in Massachusetts. F. E. Williams, New York.—p. 481.
40 Feebleminded as an Element in Poverty. R. W. Kelso, Boston.—p. 484.
41 What it Means to Have Noncommitted Feebleminded in Community. C. C. Carstens, Boston.—p. 487.
42 Plea for Instruction and After-School Care of Feebleminded Deaf. C. A. Yale, Northampton.—p. 490.
43 Defective Girl Who Is Immoral. M. B. Blake, Boston.—p. 492.

38. **Cerebrospinal Fluid in Poliomyelitis.**—Overholser found that in the early postparalytic stage of anterior poliomyelitis the spinal fluid usually shows a moderate lymphocytosis and a slight to moderate increase in pressure and in globulin content. Fehling's solution is reduced, but this phenomenon is of little diagnostic value. A reasonably constant curve is yielded by Lange's colloidal gold test; this curve has some value in the differential diagnosis. The picture is only fairly constant, and in the absence of positive clinical findings does not justify a diagnosis.

Illinois Medical Journal, Chicago

October, XXXII, No. 4

44 Advisability of Prostatectomy in Presence of Cord Lesion. E. S. Judd and W. F. Braasch, Rochester, Minn.—p. 229.
45 Our State Hospitals' Straits. S. D. Wilgus, Rockford.—p. 233.
46 Is Nitrous Oxid Oxygen Gas in Labor Dangerous to Babies? R. R. Ferguson, Chicago.—p. 242.
47 Physician and Public Health. W. E. Park, Rockford.—p. 245.
48 Practical Methods of Sewage Disposal. E. Bartow, Urbana.—p. 248.
49 Hygiene of Pregnancy. E. V. Davis, Chicago.—p. 250.
50 Duty of State to Choreic Child. C. B. King, Chicago.—p. 253.
51 Etiology of Poliomyelitis. J. W. Nuzum, Chicago.—p. 254.
52 Epidemiology of Poliomyelitis. C. W. East, Springfield.—p. 256.
53 Duties and Problems of Secretary of Active County Medical Society. T. G. McLin, Jacksonville.—p. 259.
54 Medical Legislative Work in Illinois. D. W. Deal, Springfield.—p. 261.
55 Organization of *Medical Legislative Work in* County Society. F. C. Gale, Pekin.—p. 264.
56 Syphilis Among Admissions to Elgin State Hospital. E. W. Fell, Elgin.—p. 267.
57 Studies in Meningitis. A. Levinson, Chicago.—p. 270.

58 Why Do We Have Recurrences After Operations on Biliary Tract. D. N. Eisendrath, Chicago.—p. 272.
59 Postoperative Meningeal Hemorrhage. G. W. Green and J. J. Moore, Chicago.—p. 278.
60 Blood Pressure Again. J. Sherlaw, Chicago.—p. 281.
61 Urinary Abnormalities Among Insane. H. T. Child, Kankakee. —p. 287.

Journal of Abnormal Psychology, Boston

August, XII, No. 3

62 Theories of Freud, Jung and Adler. Work of Sigmund Freud. J. J. Putnam, Boston.—p. 145.
63 Notes with Reference to Freud, Jung and Adler. T. Burrow, Boston.—p. 161.
64 Adler Concept of Neuroses. W. A. White, Washington, D. C. —p. 168.
65 Some Criticisms of Freudian Psychology. R. S. Woodworth, New York.—p. 174.
66 Need for Stricter Definition of Terms in Psychopathology. M. Solomon, Chicago.—p. 195.

Journal of Bacteriology, Baltimore

September, II, No. 5

67 Preliminary Report of Committee of Society of American Bacteriologists on Characterization and Classification of Bacterial Types. C. E. A. Winslow and others.—p. 505.
68 Counting Living Bacteria in Milk; Practical Test. W. D. Frost, Boston.—p. 567.
69 Bacterial Metabolism of Sulphur. Formation of Hydrogen Sulphid from Certain Sulphur Compounds under Aerobic Conditions. F. W. Tanner, Urbana, Ill.—p. 585.

Journal of Laboratory and Clinical Medicine, St. Louis

September, II, No. 12

70 *Operative Treatment of Peripheral Nerves After Severance, More Particularly After Loss of Substance—Critical Review. G. C. Huber, Ann Arbor, Mich.—p. 837.
71 *War Deafness and Its Prevention—Critical Review. S. R. Guild, Ann Arbor, Mich.—p. 849.
72 *Fourth Venereal Disease—Erosive and Gangrenous Balanitis. R. G. Owen and F. A. Martin, Detroit.—p. 862.
73 *Possible Explanation for Cyanosis and Hyperpnea Seen in Pneumonia and Cardiac Decompensation. R. G. Pearce Cleveland. —p. 867.
74 *Experimental Asthma in Guinea-Pig. H. Sewall, Denver.—p. 874.
75 Cases of Chronic Infection Apparently Focal in Gallbladder. P. G. Woolley, Cincinnati.—p. 883.
76 *Acute Death from Chlorin Poisoning. O. Klotz, Pittsburgh.— p. 889.
77 *Blood Picture Following Experimental Splenectomy. T. G. Orr, Rosedale, Kan.—p. 895.
78 Review of Mosenthal's Work on Measurement of Renal Function. C. D. Christie, Cleveland.—p. 899.
79 Thermostat for Water Bath. H. J. Breuer, Lincoln, Nebr.—p. 906.

70. **Surgery of Peripheral Nerves.**—Huber says that the question of using autotransplants or homotransplants of nerve segments in preference to heterotransplants, in clinical cases, on the basis of experimental and clinical observations can be decided in favor of autotransplants or homotransplants in case suitable fresh nerves from man are available at the time of the projected operation, but it should be borne in mind, that especially in secondary operations for loss of nerve substance, both the time of the operation and the method used are often a matter of choice. Heterotransplants, transplantation of nerve segments taken from an animal of another species than the one to which the transplant is made, is an operation not to be wholly condemned, since clinical observations and experimental work both justify this operation. Both clinical and experimental observations warrant the deduction that the operation of choice in cases of repair of an injured peripheral nerve, where direct suture cannot be obtained, is the operation of nerve transplantation, especially if autotransplants or homotransplants are available. This may be combined with tubulization by means of fascial sheaths or hardened arteries. Of the methods of tubular suture and tubulization, hardened arteries and tubes of fascia are to be given preference. Experimental observations with other methods do not warant their recommendation.

71. **Prevention of War Deafness.**—The issuance and compulsory use of some preventive, even if it be nothing more than cotton with petrolatum, Guild says, is in the interests of efficiency in the army and of economic importance. Even such small things as ear plugs are of importance if they can serve to keep trained men in active service. The providing of preventives should not be left to the individual soldier. Nor should such preventives as we have be issued only "when demanded" and to those few who realize the danger and know of the preventive, but they should be issued like clothing, rations, ammunition and other equipment; to all the troops, officers and men alike, and their use not left optional but made compulsory when going into action. Like any other preventive, the object of their use is to keep the active service list up and the hospital list down. Guild believes that the increased efficiency of an army using plugs would be many times greater than the cost of the plugs; they would be one of the smallest expense items of all the equipment of a soldier, and the bulk of even large numbers would not be a very noticeable factor in the problem of transporting supplies.

72. **Gangrenous Balanitis.**—The six cases cited by Owen and Martin were examined within one to three days after the sore appeared, all being in the erosive stage, with an abundant discharge of foul pus, moderate edema with slight phimosis, and exquisitely tender ulcers, the largest sore being about the size of a dime. The ulcers were covered with pus and considerable coagulated serum and exudate, beneath which lay a very superficial reddish colored erosion. All showed moderate inguinal adenitis, painless in character. There were no constitutional symptoms. In all of these cases the sore had appeared within four days after exposure. One patient with a history of repeated exposures, but denying coitus in os showed *Spirochacta pallida,* as well as the organisms characteristic of this condition. This case cleared up promptly under salvarsan and local treatment with hydrogen peroxid. Three other cases treated with wet dressings of hydrogen peroxid cleared up within a few days. The remaining two patients were advised to use the same treatment, and presumably cleared, as they failed to return to their attending physician.

73. **Cyanosis and Hyperpnea Seen in Pneumonia.**—Pearce points out that the percentage of carbon dioxid in the alveolar air is not a good guide as to blood acidosis, at least in cardiac disease, pneumonia and congenital heart disease. In the cardiac case a low carbon dioxid alveolar air pressure is a result of the attempt of the respiratory center to prevent its venous carbon dioxid pressure from being unduly raised because of the slow circulation. In pneumonia and congential heart disease, the respiratory center reacts to keep the arterial blood at a normal carbon dioxid tension.

74. **Experimental Asthma in Guinea-Pig.**—It has been shown by Sewall that guinea-pigs, especially after previous sensitization, may react to intranasal instillation of horse serum by the development of respiratory seizures which have the essential characters of bronchial asthma. In some cases an apparent immunity of the respiratory apparatus may be developed while general hypersensitiveness still remains, as proved by the fatal effect of intravenous injection of serum. In most cases the hypersensitiveness of the respiratory apparatus, once acquired, tends eventually to return, at least through a period of thirteen months. Small nasal instillations of serum, 0.04 c.c., not themselves usually capable of inducing asthmatic paroxysms, apparently have a distinctly inhibiting effect on the development of asthma by large instillations, 0.2 c.c., which themselves tend to maintain hypersensitiveness and override resistance. It is an opinion supported by many additional observations, that serum is actually absorbed by the mucous membrane of the nose whenever placed in contact with it and that the immunologic reactions are internal to the surface. The conclusion, emphasized in other papers is here strengthened that in therapeutic prophylaxis better results may probably be expected by choosing a dosage of antigen which just fails to produce an obvious reaction than by one which entails a marked disorder.

76. **Acute Death from Chlorin Poisoning.**—The acute reaction found by Klotz in the lungs of animals exposed to chlorin consisted mainly in an intense congestion with edema and capillary thrombosis. Animals surviving a longer period showed a pulmonary infiltration of inflammatory cells mainly lymphocytes. The acute capillary thrombosis appears of importance in the acute deaths when the concentration of the gas is great. The intense pulmonary edema obtained by

abstracting a thin serum from the pulmonary blood vessels causes an alteration in the quality of the blood and an increase in its viscosity. This dense blood tends to clot spontaneously and is also influenced in this more rapid clotting by the presence of chlorin within the lung. These two factors, increased viscosity and capillary thrombosis, impede the ready flow of blood through the lung and lead to a fall in the arterial blood pressure. Thus, acute chlorin gassing differs materially from other forms of asphyxia.

77. **Blood Picture Following Experimental Splenectomy.**—In a series of twelve rabbits Orr succeeded in producing an anemia by splenectomy which had a duration of sixty or more days, after which time the red blood count and hemoglobin returned to normal. No definite change was produced by splenectomy in the platelet count and coagulation time. Changes in the total white cell count produced by removal of the rabbit's spleen were not constant. The same conclusion applies to the elements in the differential counts, with the exception of the large mononuclears, which were increased in every instance after splenectomy.

Kentucky Medical Journal, Bowling Green

October, XV, No. 10

80 Combinations, Mixtures and Sequences of Anesthetics. W. H. Long, Louisville.—p. 454.
81 Oral Sepsis from View Point of Pediatrist. E. M. Tarr, Boston. —p. 458.
82 How School Teachers Can Benefit Physicians. E. McKendrie, Bardwell.—p. 461.
83 Thyroid. U. V. Williams, Frankfort.—p. 462.
84 Treatment of Menorrhagia and Metrorrhagia. J. F. Dunn, Arlington.—p. 464.
85 Treatment of Tuberculosis in Private Home. W. L. Tyler, Curdsville.—p. 465.
86 Report on Use of Carrel-Dakin Solution. F. Stites, Jr., Hopkinsville.—p. 467.
87 Classification of Anemias with Special Reference to Differential Diagnosis and Treatment of Addison-Biermer Type. R. L. Bone and A. L. Thompson, Madisonville.—p. 468.
88 Typhoid. J. B. White, Cave City.—p. 472.
89 Medicine of Future. W. J. Gerding, Newport.—p. 473.
90 Progress of Internal Medicine During Year 1916. E. B. Willingham, Paducah.—p. 473.
91 Beriberi or Endemic Multiple Neuritis; Report of Twenty-One Cases. F. M. Travis, Eddyville.—p. 476.
92 Fibroid Tumors. A. W. Cain, Somerset.—p. 483.

Maine Medical Association Journal, Portland

September, VIII, No. 2

93 Experience in Base Hospital in France. E. Nichols, Boston. —p. 31.
94 Medical Preparedness. W. L. Cousins, Portland.—p. 43.

Medical Record, New York

October 6, XCII, No. 14

95 Critical Analysis of Treatment of Tuberculosis with Copper and Potassium Cyanid. G. H. Evans, San Francisco.—p. 575.
96 Plea for Greater Exactness in Diagnosis and Treatment of Tuberculosis. R. C. Newton, Montclair, N. J.—p. 580.
97 Lesions of Posterior Urethra; Their Symptomatology, Diagnosis and Treatment. E. M. Watson, Buffalo.—p. 583.
98 Splenic Reflexes of Abrams in Diagnosis and Treatment of Syphilis. A. Abrams, San Francisco.—p. 586.
99 Necessity of Further Administrative Control of Scalp Diseases in Children and Adults. W. A. Manheimer, New York.—p. 587.
100 Treatment of Lobar Pneumonia. M. F. Morris, Jr., Chelsea, Mass. —p. 589.
101 Seventeen Cases of Goiter Treated with Injections of Phenol, Iodin and Glycerin. J. E. Sheehan, New York.—p. 591.
102 Five Cases of Acute Streptococcic Infection. E. G. Zimmerer, Lincoln, Nebr.—p. 592.
103 Hot Air and Calomel Vapors in Treatment of Catarrhal Deafness and Other Mucous Membrane and Systemic Conditions. E. J. Brown, Minneapolis.—p. 593.

New York Medical Journal

October 6, CVI, No. 14

104 Aspiration or Vacuum Suction Apparatus. R. C. Myles, New York.—p. 629.
105 Etiology and Treatment of Frequency of Urination in Women. W. E. Stevens, San Francisco.—p. 630.
106 Vital Statistics. W. H. Guilfoy and E. W. Kopf, New York.—p. 633.
107 Modern Children's Clinic of Outpatient Department. C. Herrman, New York.—p. 636.
108 Typhoid Appendicitis. E. W. Skelton, New York.—p. 638.
109 Intubation in Diphtheria. A. J. M. Treacy, Philadelphia.—p. 643.
110 Serum Disease, Anaphylaxis and Allergie. F. E. Stewart, Philadelphia.—p. 644.
111 Urticaria. O. Jeerg, New York.—p. 647.

Ophthalmic Record, Chicago

October, XXVI, No. 10

112 Hemianopsia. R. I. Lloyd, Brooklyn.—p. 491.
113 Acute Pneumococcus Conjunctivitis with Complications and Fatal Termination from Meningitis. R. R. Brownfield, Phoenix, Ariz. —p. 516.
114 Habitual Use of Spectacles. An Insurance against Traumatism Rather than a Risk. H. Gifford, Omaha.—p. 519.

Rhode Island Medical Journal, Providence

October, I, No. 10

115 Medical Officers' Reserve Corps. H. D. Arnold.—p. 205.
116 Organization of Dispensary Services of Second Naval District. D. N. Carpenter.—p. 208.

South Carolina Medical Association Journal, Greenville

September, XIII, No. 9

117 Some of the Predisposing Influences of Nervous and Mental Diseases. J. F. Munnerlyn, Columbia.—p. 668.
118 Carcinoma of Female Breast. H. S. Black, Philadelphia.—p. 671.
119 Stones in Urinary Tract. E. P. Merritt, Atlanta, Ga.—p. 676.
120 Plea for Local Anesthesia in Major Surgery. J. H. Johns, Westminster.—p. 678.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Archives of Radiology and Electrotherapy, London

September, XXII, No. 4

1 Roentgenology of Os Petrosum. H. W. Stenvers.—p. 97.
2 Method for Rapid Determination of Depth of Foreign Bodies from Roentgen Ray Plates. E. H. Nelthorpe.—p. 113.

British Medical Journal, London

September 15, II, No. 2959

3 *Infective Jaundice. B. Dawson, W. E. Hume and S. P. Bedson. —p. 345.
4 Some Nose and Throat Diseases of Childhood. D. Guthrie.—p. 355.
5 *Combined Vaccination with Multiple Vaccines (Quadruple, Quintuple and Sextuple). A. Vastellani and F. Taylor.—p. 356.
6 *Rupture of Left Bronchus from Trachea. J. Patrick.—p. 359.
7 *Treatment of Vincent's Angina. E. Emrys-Roberts.—p. 360.

September 22, No. 2960

8 *Meningococcus of Weichselbaum. E. C. Hort.—p. 377.
9 *Suitability of More Soluble Salts of Quinin and Cinchonin for Intravenous Injection. L. Rogers.—p. 381.
10 Scabies Problem on Active Service. H. MacCormac and W. D. D. Small.—p. 384.
11 Convenient Method of Preparing Eusol. J. L. Smith, J. Ritchie, and T. Rettie.—p. 386.
12 Carrel-Dakin-Daufresne Treatment. R. M. Rowe.—p. 387.
13 Carrel-Dakin Treatment and Method for Its Application on Extensive Scale. L. Dimond and R. McQueen.—p. 387.
14 Case of Intra-Ureteral Primary Syphilitic Chancre. P. A. Clements.—p. 388.
15 Screen Method of Localization. J. H. Shaxby.—p. 389.

3. **Infective Jaundice.**—It would seem to be proved by the authors that there is in the armies in France a type of infective jaundice which is the same in clinical and pathologic features as that described by the Japanese workers, and that this disease is caused by the *Spirochaeta icterohemorrhagiae.* And there is also undoubtedly proof that this same spirochete may cause a similar train of symptoms without the appearance of jaundice. The entire subject of infective jaundice is reviewed by the authors and a complete bibliography is appended to this article.

5. **Combined Vaccination with Multiple Vaccines.**—Tetravaccine No. 1 (T. A. B. C.) prepared by the authors consists of four standardized emulsions mixed together in equal proportions and containing, per cubic centimeter: typhoid, 500 million; paratyphoid A, 250 million; paratyphoid B, 250 million; cholera, 2,000 million. Of this mixture 0.5 c.c. is given under the skin of the arm the first time, and the same or double the amount a week later. Tetravaccine No. 2 (T. A. B. M.) consists of an emulsion in phenolized saline solution (phenol 0.5 per cent., salt solution 0.85 per cent.) of *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, and *M. melitensis.* After standardizing the four different vaccines and testing their sterility they are mixed together in equal parts. The vaccine will contain, per cubic centimeter: typhoid, 500 million; paratyphoid A, 250 million; paratyphoid B, 250 million; malta fever, 2,000 million. Of this vaccine 0.5 c.c. is injected subcutaneously in the arm, and a week later the same or double the amount is given. Pentavaccine

No. 1 (T. A. B. C. P.) consists of a phenolized saline emulsion of typhoid, paratyphoid A, and paratyphoid B bacilli, cholera vibrios and plague bacilli. The vaccine is standardized to contain, per cubic centimeter: *B. typhosus*, 500 million; *B. paratyphosus* A, 250 million; *B. paratyphosus* B, 250 million; *V. cholerae*, 2,000 million; *B. pestis*, 500 million. Half a cubic centimeter is given the first time and double the amount a week later. Pentavaccine No. 2 (T. A. B. C. M.) is so standardized that each cubic centimeter contains: typhoid, 500 million; paratyphoid A, 250 million; paratyphoid B, 250 million; cholera, 2,000 million; malta fever, 2,000 million. At the first injection 0.5 c.c. is given and the same or double the dose a week later.

Hexavaccine (T. A. B. C. P. M.) consists of an emulsion in phenolized salt solution (phenol 0.5 per cent., salt solution 0.85 per cent.) of *B. typhosus*, *B. paratyphosus* A, *B. paratyphosus* B, *V. cholerae*, *B. pestis* and *M. melitensis*. The combined vaccine is standardized so as to contain, per cubic centimeter: *B. typhosus*, 500 million; *B. paratyphosus* A, 250 million; *B. paratyphosus* B, 250 million; *V. cholerae*, 2,000 million; *B. pestis*, 500 million; *M. melitensis*, 2,000 million. The first time 0.5 c.c. is given and the same or double the amount a week later. The authors point out that the inoculation of the combined vaccines is harmless. The reaction is not severe with the exception of those containing *B. pestis*, but even simple plague monovaccines, whatever their method of preparation, give a severe reaction. It is essential to use in the preparation of the vaccines selected strains of the various micro-organisms which have been found by experience to be rich in antigen. This is especially the case as regards *B. paratyphosus* A and *M. melitensis*, some strains of which are very poor in antigen, and when injected give rise to only a small production of antibodies. Combined vaccines are of practical advantage, especially in the case of troops, rendering possible a contemporaneous immunization for several different maladies; this saves a great deal of time, and the men do not suffer the discomfort of a large number of inoculations. To protect the troops against typhoid, paratyphoid A, paratyphoid B, and cholera with the method of ordinary monovaccines in succession, eight inoculations, at least, were necessary, spread over a period of two months; with the tetravaccine (T. A. B. C.) two inoculations only are sufficient, spread over a period of a week.

6. Rupture of Left Bronchus from Trachea.—The injury in this case was caused by a gunner falling from an empty general service limber, whose wheel then passed over his chest. Besides other injuries there was partial separation of the left bronchus from trachea, the tear being through the anterior portion to the extent of two-thirds of the circumference; acute inflammatory reddening of the mucous membrane of both bronchi; inflammatory infiltration of cellular tissue of middle mediastinum; the cartilaginous rings of trachea and bronchi normally flexible and tough. The most striking primary features of the postmortem examination were the profound degree of collapse of the left lung, its acute hemorrhagic state, evidence of the severity of the crushing blow and the acuteness of the pericardial inflammation.

7. Treatment of Vincent's Angina.—The treatment used by Emrys-Roberts consists in the local application of the following lotion:

	gm. or c.c.	
Hydrogenii peroxidi	150	℥ v
Vini ipecacuanhae	12	ʒ iij
Glycerini	15	ʒ v
Aquae ....ad	240	℥ viij

By its use the gingivitis is usually cured in about six days, while the throat condition clears up altogether in from twenty-four to forty-eight hours.

8. Meningococcus of Weichselbaum.—Hort believes he is able to produce direct morphologic evidence that the meningococcus is not a bacterium at all, and that both it and the filterable virus actually represent different phases in the life cycle of an ascomycetic organism which has hitherto been believed to be an involution form of the meningococcus. This communication deals mainly with the morphologic characters of the meningococcus and of its so-called giant forms which represent an ascal stage in the life cycle of an organism allied to the ascomycetes. The ascus may be either large or small, or of any intermediate size (0.2 to 5 microns). The meningococcus of Weichselbaum is an ascospore, derived from the giant meningococcus by a process of endosporulation. Hort says that the true nature of the meningococcus and its alleged giant forms has hitherto been missed because of the practically exclusive use of solid mediums for purposes of identification, and because direct examination of unstained living organisms, including warm stage development in liquid cultures, has not been carried out.

9. Intravenous Injection of Quinin in Malaria.—As 3 grains of the bihydrochlorid contain as much quinin as 4 of the acid hydrobromid, after commencing with 0.5 gm. doses to ascertain whether the patient has any idiosyncrasy toward the drug, up to 12 grains of the bihydrochlorid or 16 grains (approximately 1 gm.) of the acid hydrobromid, in 7.5 and 10 c.c., respectively, of normal saline (making practically 10 per cent. solutions), may be given once daily for at least four days. Rogers advises to supplement the intravenous doses with quinin by the mouth, as the former is likely to be rapidly excreted through the kidneys, a point he is now investigating. In any case prolonged oral administration should follow the more active intravenous medication. Once the resistant relapse producing stages of the malarial parasite have been produced, quinin by intravenous administration is not likely to be so effective, but the vigorous treatment of primary attacks of malaria by intravenous quinin appears to be worthy of careful trial to ascertain if the frequency of subsequent relapses can be reduced. A further material advantage of such early intravenous administration is likely to be that dangerously large infections, which may terminate at any moment in fatal coma under oral administration of quinin, are likely to be rapidly controlled, and the present mortality from malaria to be reduced to practically nothing.

Glasgow Medical Journal

September, LXXXVIII, No. 3

16 *Rectal Crises of Nontabetic Origin. A. MacLennan.—p. 129.
17 Plastic Meatotomy. J. L. Hamilton.—p. 132.
18 Inguinal Hernia; Some Comments on Present Views. C. Bennett.—p. 134.

16. Rectal Crises of Nontabetic Origin.—Both sexes are liable to these attacks, though, in MacLennan's experience, they occur more frequently in males. It has been observed in ages ranging from 16 to 50. The pain complained of is of the most commanding character; it is located in the sacral region. Tender areas are not associated with the deep seated pain, but, on the contrary, pressure tends rather to give relief. The crisis commonly arises during defecation, especially if accompanied by straining. On the other hand, the patient may be wakened from a sound sleep by the rapidly growing pain. Tenesmus is present, and the act of defecation, though at first it causes an exacerbation of the suffering, results in its cessation. In men the crisis may be accompanied by priapism. When the crisis has reached its zenith the onset of a general tremor or rigor, accompanied by the sensation of cold, is almost invariably followed by a rapid cessation of the pain. The pain may wax and wane, but the most severe attacks are often the shortest. Examination of the rectum during the attack has demonstrated in two cases the presence of a fine fibrillar tremor in the internal sphincter. Piles may be present and undoubtedly enter into the etiology. A severe type of rectal crisis was recently observed after colostomy in a case of inoperable cancer of the rectum. The lesion is a neurosis. In no case examined during the pain has the rectum been found quite empty, and constipation of a minor degree has been the rule. The treatment MacLennan has found most efficacious has been the inhalation of a dozen drops of chloroform placed on a handkerchief.

Lancet, London

September 8, II, No. 4906

19 *Treatment of Chest Wounds. T. R. Elliott.—p. 371.
20 Purulent Bronchitis; Its Influenzal and Pneumococcal Bacteriology. A. Abrahams, N. F. Hallows, J. W. H. Eyre and H. French.—p. 377.

21 *Trench Fever, Associated with Presence of Hemogregarine. L. Dimond.—p. 382.
22 Case of Influenzal Meningitis. K. S. Bhat.—p. 384.
23 Case of Periodic Attack of Pyrexia. R. V. Solly.—p. 386.
24 Case of Advanced Multiple Brain Softening. T Walmsley.—p. 387.
25 Case of Chickenpox Simulating Smallpox. F. C. Poynder.—p. 388.
26 Case of Malaria Acquired in England. S. C. Biswas.—p. 388.
27 Studies in Anatomic Nomenclature. W. C. Morton.—p. 398.

19. Treatment of Chest Wounds.—The chief practical points emphasized by Elliott are the following: A sterile hemothorax of moderate size, that is, of about 30 ounces, will recover as rapidly by natural absorption as by aspiration. The retention of foreign bodies in the chest in aseptic cases does not appear to exert any crippling effect for military service, but more accurate information is urgently needed on this point. Cases of infected hemothorax that have been drained in France and the patients transferred to the united kingdom, generally recover rapidly and completely. None die and subsequent operations are rarely needed. More than one-half of these empyema patients can be returned to duty. The late mortality from chest wounds is practically nothing in England, and it is only 5 per cent. on the lines of communication in France; but in the area of the armies it is higher than was at first supposed. About 10 or 15 per cent. may die in medical units at an early date from the severity of the injury and about 10 per cent. may die later at the casualty clearing stations from complicating sepsis. Among those casualties in which sepsis is developed within the chest the mortality is very high, rising to nearly 50 per cent. under the present system of treatment by rib resection and drainage. The old conservative routine of surgical nonintervention, except by late drainage, finds its justification only in the satisfactory recovery of those cases of gunshot wound of the chest which remain noninfected, that is, about 75 per cent. The high mortality in those patients who develop sepsis demands a wider practice of the new prophylactic method of cleansing operation performed at an early hour on certain carefully chosen groups of patients.

21. Trench Fever Associated with Hemogregarine.—The presence of a small hemogregarine, resembling in many respects the *Hemogregarina gracilis* found by Wenyon in a lizard host, has been noted by Dimond in the venous blood, the blood from the liver, spleen and lung punctures in twelve cases of trench fever. The fact that this protozoon of trench fever is a hemogregarine suggests the extreme probability that the *Pediculus corporis*, or what is even more likely, that a louse allied to the *Hematopinus stephensi* and parasitic on the Indian field rat, is the carrier of the protozoon. The presence of such large numbers of rats in the trenches, which come into close association with the troops seems to favor this conclusion. An effort is being made to trace out the cycle of sporogony in the stomach cells of the different types of lice commonly present in the underclothing of soldiers.

Medical Journal of Australia, Sydney

August 25, II, No. 8

28 Broken Hill Epidemic. G. H. Burnell.—p. 157.
29 Cases of Perforated Gastric and Duodenal Ulcers. D. Kelly.—p. 162.
30 Case of Splenectomy for Splenic Anemia. H. Bullock.—p. 163.
31 Differential Diagnosis and Pathology. P. E. W. Smith.—p. 164.

September 1, No. 9

32 Fractures. R. H. Russell.—p. 177.
33 Case of Fracture of Skull. A. Aspinall.—p. 183.

September 8, No. 10

34 Clinical Treatment of Syphilis in Australian Army. H. H. Griffith.—p. 197. To be continued.
35 Diagnosis, Prophylaxis and Treatment of Plumbic Ocular Neuritis Among Queensland Children. J. L. Gibson.—p. 201.
36 Case of Tetania Parathyreopriva Complicating Pregnancy. J. D. Herlihy.—p. 204.

Archives Médicales Belges, Paris

August, LXX, No. 8, pp. 673-792

37 *War Surgery from Paré to Carrel. F. Helme.—p. 673.
38 *Epinephrin in Addison's Disease. P. Nolf and H. Fredericq.—p. 691.
39 *The Functioning of the Suprarenal Capsules in Infections. N. Goormaghtigh.—p. 697.
40 *Treatment of Relapsing Fever. de Ruddere.—p. 710.
41 Present Status of Opinion in Respect to Soldier's Heart. Wybauw.—p. 714.
42 The Conclusions Voted by the Conférence Chirurgicale Interalliée in relation to Treatment of War Wounds.—p. 769.

37. The Development of War Surgery.—Helme traces the history of the care of the wounded in war from Paré in the sixteenth century to Carrel in the twentieth. His quotation from Paré's book, published in 1545, reads as if it might have been written last week: "When I hear people speak of the weapons and war machines that used to be used in battles and in taking towns, they seem like children's toys in comparison to those that are being used today, which surpass in size and cruelty all that one could imagine of the most cruel." Mines, counter mines and grenades were already in use then, and wounds were dressed with boiling oil. Paré, the young barber-surgeon, used cool turpentined oil instead of boiling oil, in the numerous campaigns which he accompanied. Vesalius was about the same age at the same time and served in the enemy army. Each at the age of 28 published an epoch-making work, Vesalius breathing new life into anatomy and Paré creating surgical anatomy and introducing the ligation of vessels to arrest hemorrhage after an amputation. Before him, the bleeding vessels had been seared with a hot iron. Without any knowledge of the principles of antisepsis, he applied antisepsis in treatment of wounds, and his mixture of brandy, salt and water is not unlike the hypertonic solution which some advocate now for dressing wounds. Paré lived to be 80, serving four kings and tending thousands of soldiers in more than 100 battles. His work was translated into four other languages but, notwithstanding this, his influence on military surgery nearly all died with him. Only one principle survived, namely, the importance of avoiding delay before the wounded get surgical care. Larrey and Percy insisted on this principle in Napoleon's campaigns and preached "Operate quickly, operate thoroughly, and watch over the general condition as well as the local." The next great advance, Helme declares, was when Carrel showed how to ward off secondary infection and suture the wound early. He adds: "Carrel seems to have inherited in his fingers the delicate touch of his forebears, silk weavers of Lyons. After four years of intern service at Lyons and a term as prosector of anatomy, he spent several years at Chicago and then entered the Rockefeller Institute at New York where his leading idea—to perfect the surgery of the lungs—drew him on through the various phases of suturing of blood vessels, and means to stimulate healing, to his final successful technic, the secondary suture, which Professor Depage regards as the greatest discovery that has been made in surgery since Lister."

38. Epinephrin in Addison's Disease.—The case of Addison's disease described by Nolf and Fredericq is exceptional only in the extreme tolerance of the patient for epinephrin. The man of 38 with grave symptoms of suprarenal insufficiency was given 10.5 mg. epinephrin in four and a half hours; this included 2 mg. subcutaneously and 8.5 mg. intravenously. No sugar appeared in the urine and the blood pressure was not brought up quite to the normal figure even with this. The following days 6 and 4 mg. were given. There were no signs of intolerance at any time, even though to attain the desired therapeutic result these large doses were found necessary. The case teaches that we need not shrink from large doses of epinephrin in emergencies, as with acute suprarenal insufficiency under chloroform, or with gaseous gangrene or other hypotony of infectious origin. By watching over the blood pressure as the epinephrin is being taken, we can continue it and push it until the arterial pressure is brought up to a point where the functioning of the organs is possible once more.

39. Suprarenal Functioning During Acute Infections.—Goormaghtigh has been systematically investigating what occurs in the suprarenals under the influence of a general infection, before actual pathologic changes become installed. He examined seventy suprarenal capsules taken from the cadaver from fifteen to sixty minutes after death. This research demonstrated among other things that the suprarenals show macroscopic changes during the course of infectious processes complicating war wounds, more than any other organ in the body. The suprarenals become turgid, the surface grows redder, a bright red or a brownish or sepia red, while the organ increases in weight. From the very incipiency of the infection, the cortex pours out into the blood stream its reserve of cholesterol and proceeds to secrete more. In grave infections, terminating fatally in two or three days, all the reserves are exhausted. The secretion of new lipoids is activated. With infectious processes running an average of ten or twenty days, the suprarenals develop pathologic lesions, the most important of which seems to be the atrophy of the fasciculated zone. The glomerular zone seems to reenforce or substitute the functioning of this zone. Its task seems to be the collection from the blood of the materials necessary for the production of cholesterol. The other zones show signs of secretory hyperactivity. In infectious processes of slow development, the parenchyma of the gland becomes hypertrophied. The data presented apparently demonstrate a close analogy between the mechanism of the secretory processes in the suprarenals, corpora lutea, and the interstitial gland of the ovaries. The epinephrin-secreting medullary substance of the suprarenals is stimulated to enhanced secretion by the infection. The morphologic evidence of this hyperactivity is the pronounced differentiation of its constituent elements. In some cases this excessive activity completely exhausts this portion of the gland. In conclusion he reports that injection of epinephrin in the course of infections notably augments the activity of the medullary parenchyma of the gland. Three colored plates illustrate the phases which he describes.

40. **Relapsing Fever in East Africa.**—De Ruddere describes the clinical picture and the complications of relapsing fever as it appeared among the Belgian troops on their victorious march through German East Africa. It affected black and white troops alike. The ticks that transmit this disease are rare in the Belgian Congo but are extremely numerous in German East Africa, especially along the caravan routes. The disease is easily recognized by the frontal headache and pains in the bloodshot eyes. The spirilla are found in the blood during the febrile attack but not at other times. Salvarsan and its substitutes did not seem to have any curative action except at the first attack, but they materially relieved the pain and discomfort at each relapse. The duration and frequency of the attacks did not seem to be modified by them in the least. Iridocyclitis is a comparatively common complication, but this yielded to salvarsan or atoxyl in his experience. One man succumbed to complicating epistaxis, and in most of the severe cases the heart muscle was modified, the heart sounds duller and the pulse small and fast during and between the relapses. There may be ten or fifteen relapses of tick fever, and the men are sick with it for a total of rarely less than three months.

Journal de Médecine de Paris

XXXVI, No. 5, pp. 87-100

43 *Influence of Colored Light on Flies. C. Galaine and C. Houlbert. —p. 95.

No. 6, pp. 101-120

44 *The Danger from Preservatives in Foods. A. Satre.—p. 107.
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No. 7, pp. 121-140

50 Historical Sketch of Suture Procedures for Wounds of the Intestines. A. Satre.—p. 127.
51 The Diet for Diabetics. Nigay.—p. 128.
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54. **Hot Foods as Factor in Dyspepsia.**—Manquat relates various experiences which converted him to the opinion that in a very large proportion of cases dyspepsia and aerophagia are brought on and maintained by the habit of taking beverages and food too hot for the tissues to bear without injury. This is particularly the case with hot soups, tea, etc., taken on an empty stomach. The hot fluid passes so rapidly through the mouth that the buccal mucosa is not injured. When the hot drink is taken at the close of a meal, the injury is comparatively slight as the stomach walls are protected by other food. The thermometer will show temperatures of 60 or even 68 C. (140 or 154 F.) in soups and other dishes currently taken, and even higher than this in a baked potato. He found that those dyspeptics accustomed to hot beverages and hot soups usually had long, narrow and sagging stomachs. The stomach is tender under pressure and spontaneously painful at a variable period during digestion. Hypersecretion with varying acidity and constipation are the rule—all indicating a tendency to chronic gastritis. The action of ptyalin on starch becomes reduced at temperatures over 45 C. (113 F.) and pepsin may have a similar temperature range of action. The hand cannot be held in water at 45 C. (113 F.) without modifications in the respiration and the general circulation. These modifications must certainly be more profound when the extensive and delicate mucosa of the stomach is exposed to such high temperatures. In practice, when Manquat has been able to overcome the habit of hot drinks and foods, the dyspepsia improved notably. The symptoms from stagnation in the stomach and the aerophagia were the first to show the benefit. When heat is indicated for the stomach, he adds in conclusion, "apply it to the outside."

55. **The Antirat Campaign.**—Calmette relates that the *Mus rattus* has been known from the earliest historical times, but that the sewer rat was not known in Europe until 1727 when, owing to famine and extensive earthquakes in India, large bodies of sewer rats migrated westward and overran western Europe in a few years. By the end of the eighteenth century public rat-hunts were common; in one month 16,000 rats were killed in one building in France. Calmette reviews the history of the rat further, and shows that it is often responsible for transmission of trichinosis as well as of the plague. Remlinger has also proved the transmission of rabies from dog or cat to man by the bite of rats. He has reported the case of a girl at Smyrna who developed rabies after she had been bitten in the finger by a mouse that had attacked her, in her cellar, without the slightest provocation. Calmette describes the measures adopted in various countries to repress rats, saying that, left unmolested, one couple theoretically would breed 500,000 descendants in two years. Even if only a tenth survive, they form a formidable army. The system of bounties seems to work well, he says. In Stockholm 600,000 rats have been killed. At Odessa 500,000 roubles were appropriated for the purpose, and in the Japanese cities a bounty of 2 or 3 cents is paid. In France, the Danysz virus has been used on a large scale against destructive field mice, but it does not act so well on rats. Numbers have been killed with it but others escape. In the Antilles the mongoos, a weasel-like animal domesticated in India, was introduced to exterminate rats, which it does most effectually. But as it attacks also poultry, etc., its depredations were found worse than those of the rats. Calmette thinks that nonvenomous serpents would be better, such as the boa, which is a great consumer of rats while harmless for man. He adds that in 1909 the British parliament voted measures to promote and regulate the destruction of rats, and he pleads that the French parliament should imitate this example. The profession must educate public opinion to realize the enormity of the economic waste from the depredations of rats, and the dangers to which they expose the land from the murderous epidemics which they transmit.

Presse Mêdicale, Paris

August 30, XXV, No. 48, pp. 497-504

56 *Recent Progress in the Fight Against Tuberculosis. J. Danysz.—p. 497.
57 Suggestions for Improved Technic for Gynecologic Examination. H. Sosnowska.—p. 500.
58 *Immediate Extraction of Projectiles. J. Fiolle.—p. 501.

September 6, No. 49, pp. 505-512

59 *Representative American Authorities in Medical Hygiene. J. J. Matignon. Title Page.
60 *Alcohol Nerve Blocking in Treatment of Causalgia. Pitres and L. Marchand.—p. 505.
61 *Exercises that Stretch the Sciatic Nerve. G. Roussy, L. Cornil and R. Leroux.—p. 506.
62 *With Active Pulmonary Tuberculosis the Sputum May Contain Tubercle Bacilli from the First. C. Richet, Jr.—p. 508.

56. **The Fight Against Tuberculosis.**—Danysz explains the mechanism of infection by the tubercle bacilli as it differs from other infections. He shows how the special phase of production of antibodies which, in diphtheria, corresponds to immunization and the cure of the disease, in tuberculosis corresponds to the beginning of the pathologic state. In diphtheria it is the excess of toxins, in tuberculosis, the excess of antibodies within the cells which determines the pathologic moment and the lesions. He presents evidence further demonstrating that a certain relative immunity can be realized by bacteriovaccination. This, in connection with the spontaneous cures in certain cases, suggests that it may yet be possible to cure the disease with a combination of vaccination and chemotherapy. But scattered experiences and experiments do not afford an adequate basis for determining the best technic for both. This is a task too vast to be left to isolated establishments. To date, the hospitals, the sanatoriums have not been able to keep the tuberculous long enough and control the results with uniform methods. To realize appreciable progress, experimental and clinical experts must be grouped in establishments for study and cure of tuberculosis, the whole work systematized and endowed, so that every discovery, old or new, can be given a thorough test for its clinical value, under the best conditions for control. These studies will be necessarily long and expensive, but they will prove less expensive in the long run than the present haphazard methods in scattered clinics, etc., without any general direction. We know now that it is possible to render the organism more resistant to contagion, and the task before us is to utilize better the clinical and experimental data already acquired, and to organize new research to clear up certain still obscure points. The services of bacteriologists, chemists, physicians and veterinarians should be organized and correlated, carrying on parallel the study of tuberculosis in both man and cattle.

58. **Immediate Extraction of Projectiles.**—Fiolle follows the path of the projectile in seeking for it, and says that nine times out of ten, it is thus possible to find and remove the missile. He strives to open up and clear out the path down to the projectile without touching it with the fingers. As the path of the projectile has to be cleared out any way, he thinks this is better than cutting down on the projectile where it is shown by the roentgen rays. Béclère advocates the latter. With a little experience, roentgenography can be dispensed with in these immediate operations, with the passage-way of the bullet still gaping or easily permeable.

59. **American Medical Pioneers in Hygiene.**—Among the names mentioned in Matignon's historical sketch of American pioneer work in medical hygiene are besides Gorgas, Reed and Lazear, Capt. E. B. Vedder of beriberi fame, Major F. F. Russell of the army antityphoid vaccination, Gentry and Ferenbaugh who found Malta fever in Texas goats, and Major Hoff and Capt. B. K. Ashford who stamped out smallpox and ankylostomiasis in Porto Rico.

60. **Nerve Blocking in Treatment of Causalgia.**—Pitres and Marchand report that Sicard's method of injecting diluted alcohol into the trunk nerve has put an end to the distressing cases of intense pain, or causalgia, following a war wound. Before this method was introduced, they had numbers of wounded suffering tortures from this cause which they were unable to relieve by any measures. The pains subsided at once on blocking the nerve with alcohol, injecting 60 per cent. alcohol into the nerve above the lesion in the thirty patients given this treatment. Three cases are described in detail to demonstrate that this nerve blocking does not aggravate preexisting motor paralysis or bring on new. On the contrary, when the pain was arrested by the alcohol, certain other disturbances disappeared with it, especially the co-organic paralysis, the nature of which is still a mystery. The causalgia in the first case had persisted for a year, not modified by an operation to free the nerve embedded in cicatricial tissue. The second patient had been wounded in the thigh, and the causalgia accompanied paresis in the domain of the femoral nerve. The femoral nerve was opened up under chloroform and 4 c.c. of 60 per cent. alcohol injected. The pains disappeared at once, and also the paresis but more gradually. Alcohol at 60 per cent. interrupts conduction of sensation but apparently does not modify conduction of motor impulses. Before the nerve blocking there was partial reaction of degeneration, but this gradually became total notwithstanding the conservation of volitional contractility in the muscles involved. In the third case the pains were in the palm although the wound was on the arm. The alcohol was injected in the wrist, but this induced merely a very brief and fleeting relief of the pain. This experience sustains Sicard's directions that the nerve has to be blocked above the lesion to be effectual.

61. **Diagnosis of Sciatica.**—Roussy gives some illustrations showing the attitudes inevitably assumed with true sciatica in doing certain exercises. For example, in trying to bend over and touch the floor, the knees stiff, the knee on the side of the sciatica is necessarily bent, or else the foot kicks out behind. When the patient sits on the floor with legs straight out, the knee on that side is always bent a little, and it cannot be fully extended. Pressure on the knee to extend the limb straight causes a sharp pain in the sphere of the sciatic nerve. Another test is the pain felt when the trunk is bent forward. The trunk has to be kept within a given angle to avoid increasing the pain of the sciatica. This unilateral

renals show macroscopic changes during the course of infectious processes complicating war wounds, more than any other organ in the body. The suprarenals become turgid, the surface grows redder, a bright red or a brownish or sepia red, while the organ increases in weight. From the very incipiency of the infection, the cortex pours out into the blood stream its reserve of cholesterol and proceeds to secrete more. In grave infections, terminating fatally in two or three days, all the reserves are exhausted. The secretion of new lipoids is activated. With infectious processes running an average of ten or twenty days, the suprarenals develop pathologic lesions, the most important of which seems to be the atrophy of the fasciculated zone. The glomerular zone seems to reenforce or substitute the functioning of this zone. Its task seems to be the collection from the blood of the materials necessary for the production of cholesterol. The other zones show signs of secretory hyperactivity. In infectious processes of slow development, the parenchyma of the gland becomes hypertrophied. The data presented apparently demonstrate a close analogy between the mechanism of the secretory processes in the suprarenals, corpora lutea, and the interstitial gland of the ovaries. The epinephrin-secreting medullary substance of the suprarenals is stimulated to enhanced secretion by the infection. The morphologic evidence of this hyperactivity is the pronounced differentiation of its constituent elements. In some cases this excessive activity completely exhausts this portion of the gland. In conclusion he reports that injection of epinephrin in the course of infections notably augments the activity of the medullary parenchyma of the gland. Three colored plates illustrate the phases which he describes.

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the usual throat localization. In the two other cases of ocular complications there was merely paralysis of the oculomotor muscles, and this did not seem to be influenced by the intensive antitoxin treatment applied, both children being left with squint. The prognosis with oculomotor paralysis should be reserved, as one never knows whether the oculomotor nerve center has been destroyed by the diphtheria toxin or has been merely transiently injured.

Riforma Medica, Naples

September 1, XXXIII, No. 35, pp. 849-868

74 *Effect of Cholesterol in Culture Medium on Development of Germs. L. Manfredi.—p. 849.
75 History of Acromegaly. (Rivendicazioni italiche.) A. Ferrannini. —p. 857.

74. Cholesterol in Culture Mediums.—Manfredi reports that addition of 0.5 per thousand cholesterol to the ordinary culture mediums did not seem to affect the development of typhoid and allied bacilli. A larger proportion checked their growth even when the content was less than the cholesterol content liable to be found in the blood in corresponding cases of these diseases. The colon bacillus and the streptococcus of erysipelas and puerperal fever were checked only with proportions over 1 per thousand, and the staphylococcus, diphtheria and cholera germs only with 2 per thousand.

Brazil-Medico, Rio de Janeiro

August 11, XXXI, No. 32, pp. 269-278

76 *The Mortality from Tuberculosis at Rio de Janeiro. P. Barbosa. —p. 269. Commenced in No. 30, p. 251.

August 18, No. 33, pp. 279-286

77 *Ankylostomiasis in the Brazilian Navy. J. Porto-Carrero.—p. 279. Commenced in No. 32, p. 271.
78 Entameba Found in Snake. (Entameba serpentis, n. sp.) A. M. de Cunha and O. da Fonseca.—p. 279.

76. Tuberculosis at Rio de Janeiro.—Barbosa remarks that the mortality from tuberculosis at Rio is higher than in the thirty other large cities of the world. It is surpassed only by that of Caracas in Venezuela and Callao in Peru while the climatic and sanitary conditions in these latter cities are far below the level of the Rio of today. The tuberculosis mortality has declined everywhere, and in Rio it dropped from about 12 per thousand inhabitants in 1863 to about 4 since 1903, the variable range since being from 4.61 to 3.83 per thousand inhabitants. Barbosa pleads to have tuberculosis and prophylactic measures against it included in the routine work of the national public health department, with a special chief for the tuberculosis work. He enumerates the measures found useful elsewhere, and urges their adoption, with penalties for promiscuous spitting. He emphasizes that tuberculosis is an epidemic disease and should be handled like all epidemic diseases. The fact that it is chronic instead of an acute epidemic does not alter the threefold principles on which every epidemic should be combated, notification, isolation and sterilization. He insists on compulsory notification but does not approve of relying on terminal disinfection. Yellow fever is almost the only disease with which terminal disinfection is of vital importance, as this kills the infected mosquitoes. Tubercle bacilli, on the other hand, rapidly succumb to air, light and drying. Rio is particularly fortunate in its housing conditions, in comparison to other large cities. There is no overcrowding; the houses have light, air and space in abundance, and there are scarcely any tenements. The high tuberculosis morbidity is due to the unrestricted dissemination of the germs and the low resisting powers of the populace which consists in large proportions of half-breeds who are extraordinarily susceptible to tuberculosis. The excellent housing conditions, the universally recognized authority of the public health service, and the docility of the people render very promising a well planned campaign against tuberculosis.

77. Hookworm in the Brazilian Navy.—Carrero protests against recent rumors in regard to the prevalence of disease in the navy, citing his own experience as fleet surgeon for the last six years. Salt water is peculiarly unfavorable for the hookworm and its transmission on ships is exceptional. Among the 6,511 marines and crews stationed at Rio in 1916, there were 214 who were given treatment for hookworm, but he doubts whether in any instance it had been acquired after entering the navy service. Only one of the thirteen patients with malarial polyneuritis had hookworm, and none of the five with beriberi. There was no death attributable to hookworm in the navy. The dispensary for hookworm patients opened in 1915 in the Marine Hospital has had to be closed for lack of patients.

Semana Medica, Buenos Aires

July 5, XXIV, No. 27, pp. 1-28

79 Pathogenesis and Treatment of Cancer. E. Cisneros.—p. 1.
80 Paraffin Film Treatment of Burns. J. M. Jerez and M. E. Jerez. —p. 20.

July 12, No. 28, pp. 29-56

81 Proposed Legislation for Unified Control Over All Public Hospitals, Asylums, Etc., in Argentina. (Asistencia Publica Nacional.) E. R. Coni.—p. 29.
82 *The Balantidium Coli in Argentina. S. E. Parodi, V. Widakowich and R. Borzone.—p. 35.
83 Present Status of Conception of Assimilation. E. Foster.—p. 41.
84 Partial Colectomy for Necrosis. E. Icasati.—p. 45.
85 Experiments in Plasmogenesis. (Recientes conquistas biogenesicas.) V. Delfino.—p. 47.
86 *Ichthyolized Petrolatum for Burns. M. R. Suarez.—p. 48.

82. The Balantidium Coli in Argentina.—Parodi and his co-workers report in detail three cases of balantidiosis in persons who had always or for twenty years lived in Argentina. The case histories and the illustrations testify that the *Balantidium coli* is prevalent in Argentina and is liable to induce the same pathologic states as it induces in other countries, and it may breed healthy carriers. Systematic examination of the stools in diarrheas and dysenteries should be the routine practice. The first known case in Argentina was published only last year. Parodi's first case was in a boy of 8. He was apparently healthy, but the stools contained not only the *Balantidium coli* but also the necator, hymenolepis and trichocephalus. Repeated examination showed that the balantidium disappeared from the stools in the course of two weeks. Possibly the exclusive milk and vegetable diet may have contributed to its disappearance. One other child in the family was said to have been having diarrhea for over a year. In the two other cases reported the balantidiosis was very severe; the adult recovered under suppression of meat and treatment with acid enemas and intravenous injections of 0.01 gm. of mercuric cyanid. No specimens of the balantidium could be discovered after the ninth day. The other patient, a boy of 9, died. The parasites had burrowed into the mucosa and induced ulceration at various points. Numerous young forms of the parasite were found close to the edges of the ulcerations, showing that it finds in them specially favorable conditions for reproduction. In each of the three cases the patients had come to the hospital for another cause, treatment of hernia or pleurisy, and the discovery of the parasite was casual. In the first it caused no symptoms; in the second case, periods of tenacious diarrhea alternated with periods of good health. In the third, the toxic necrosis of the bowel proved promptly fatal.

86. Ichthyolized Petrolatum for Burns.—Suarez has been using for ten years a 10 or 15 per cent. ichthyolized petrolatum in treatment of burns, and he here expatiates on its analgesic and healing power and the fact that with it the dressings do not stick to the tissues.

Russkiy Vrach, Petrograd

XVI, No. 15, pp. 337-360

87 *Cheese in Dietetic Treatment of Nutritional Disturbances in Infants. V. K. Menshikoff.—p. 337.
88 *Method of Isolating Toxins, Especially Tetanus Toxin. E. S. London and V. M. Aristovsky.—p. 341.
89 *Method of Specific Concentration Applied to the Ferments of the Pancreas. E. S. London and E. P. Pakhotina.—p. 342.
90 Operative Treatment of Prolapse of the Rectum. V. R. Braitseff. —p. 342.
91 The Civilization and Medicine of Ancient Assyria and Babylonia. P. V. Modestoff.—p. 346. To be continued.
92 Cholesterolemia and Its Pathologic Importance. V. N. Kuznetsoff and S. S. Khalatoff.—p. 349.
93 The Physiologic Bases for Electrocardiography and Its Clinical Significance. M. M. Gubergritz.—p. 354. Conclusion.

87. Cheese in Infant Feeding.—Menshikoff describes striking results in infant feeding with curds, cheese curds (*tvorog*), after serious disturbance from too exclusive carbohydrate and salt-containing foods (soups and broths). He gives the full details of seven cases of this type. One child of 19 months, for example, weaned at the twelfth month, had signs of rachitis, with pale, doughy skin, weak pulse, subfebrile temperature, languor and apathy, and cold hands and feet, with diarrheic stools, with mucus content, averaging ten passages a day. There was no albuminuria. Pressure on the ankles left a deep pit. All other feeding was stopped and nothing allowed but rice water with five tablespoonfuls of cheese to the liter as the daily amount. After two days the stools lost their diarrheic character and there were only two passages a day. Then a quarter of the fluid was given in the form of cow's milk, and at once the diarrhea returned, four watery passages a day. The milk was stopped after two days, and the diarrhea subsided. The general condition had much improved by this time, the hands and feet keeping warm. The edema then was gradually thrown off, the weight dropping, and by the end of the week there was no further evidence of the dropsical tendency. Then very slowly and gradually the ordinary diet was resumed, adding to the rice water and cheese small amounts of acorn coffee made with milk, yolk of egg, bread, etc., so that by the end of the month the weight had increased from the original 7,600 to 7,700 gm. notwithstanding the intervening loss of 1,000 gm. as the dropsy was thrown off. The case illustrates the extreme caution necessary in resuming milk, after conditions have been righted under the cheese.

The work issues from the clinic for children's diseases at the University of Kazan, and Menshikoff theorizes to explain the mechanism of this benefit from the cheese with such severe upset of metabolism. He adds that the absence of the salts in the whey of milk, and of carbohydrates, on the one hand, and the predominance of albumin make this method of feeding especially advantageous when there is diarrhea from excessive fermentations in the bowels. In acute upsets of the salt metabolism, with edema in the subcutaneous tissues, any food containing salts and carbohydrates is directly contraindicated. Under the restriction to cheese the dropsy promptly disappears, the tolerance for food is increased, and the normal functioning of the tissues is restored. After the edema has disappeared, food containing salts and carbohydrates can be resumed without bringing back the previous disturbances. The weight drops as the edema subsides, but this loss in weight is not accompanied with collapse and is highly desirable. As there is no further intake of salts on the cheese diet, the source of the edema is removed and there is no return of the edema on resumption of the ordinary diet. One of another group of typical cases of which the details are given was that of a child of 6 months with pronounced atrophy and other indications of nutritional disturbance from too exclusive carbohydrate feeding. It had been taken from the breast four months before and had been fed on milk diluted 2:1, milk gruel and biscuit. It weighed only 4,690 gm. and had long been having ten diarrheic green passages a day, with much gas, and the child was very restless. It was then put on milk diluted with gruel, 1:2, with 4 per cent. sugar. The diarrheic stools continued, and the child was losing rapidly in weight. The next day it was given rice water to 900 c.c. a day, with one dessertspoonful cheese to each 200 gm. By the next day the stools were compact and there was no further loss of weight. In four days the weight had risen to 4,620 gm., and the child seemed quiet and to feel well. Then the diet was changed to 300 gm. milk; 600 gm. of the rice water; six dessertspoonfuls cheese, and 3 per cent. sugar. The stools continued normal, and the weight in nine days had risen to 4,900 gm.

An older child, 2½ years old, had been eating at the regular table but was debilitated by diarrhea for two months and nervous, with attacks of convulsions, and chilliness. After failure of the ordinary measures, he restricted the diet to the rice water with a tablespoonful cheese to each 200 gm., allowing the child as much of this as it cared to take; it took 1,250 gm. per day. By the tenth day the bowel functioning seemed to be normal, during the last week the diet had gradually been enlarged to include bouillon, chops and baked apples. There were no further convulsions and the child seemed in excellent health, having regained nearly its former weight by the end of the second week. In conclusion he expatiates on the advantages of cheese as inexpensive and readily accessible to all, and not requiring clinical supervision. He has repeatedly ordered it for dispensary children. He warns, however, that when the debility from the drain of the diarrhea has reached an extreme degree, so that the child would be unable to stand deprivation of salt from the food, this method of feeding is contraindicated.

88. **Isolation of Tetanus Toxin in Pure Form.**—See Current Comment, this issue.

89. **Isolation of Ferments of Pancreatic Juice.**—See Current Comment, this issue.

Nederlandsch Tijdschrift voor Geneeskunde, Amsterdam

July 28, II, No. 4, pp. 269-348

94 Modern Spiritualism. II. G. van Rijnberk.—p. 272.
95 Leonardo da Vinci's Anatomic Drawings. A. J. P. van den Broek.—p. 277.
96 *Gunshot Fractures of the Femur. L. M. Metz.—p. 284.
97 The Hat as Cause of Baldness. K. G. F. Sloos.—p. 299.
98 Infection of Internal Ear and Meninges After Fracture of Base of Skull. F. H. Quix.—p. 302.

August 4, No. 5, pp. 349-440

99 The Sensation of Pain in Man and Animals. (Voor en tegen proeven op levende dieren.) G. van Rijnberk.—p. 349.
100 *Sensory Metameres in Cat Hind Leg. (De bouw en overdekking der achterpootdermatomen bij de kat.) S. de Boer.—p. 359.
101 *Depressions in the Skull as Symptom of Rachitis: Tri-Bounocephaly. C. A. J. Quant.—p. 371.
102 Case of Sporotrichosis. J. K. W. Kehrer.—p. 386.
103 Deterioration with Age of Scopolamin Solutions. H. Bolten.—p. 390.

96. **War Fracture of the Femur.**—Metz relates his experiences in this line when with the Netherlands ambulance in Silesia where he had seventy cases in his charge. He applied extension by driving a nail into the femur or tibia in thirty-five cases, and never witnessed anything suggesting infection entering through the nail hole.

100. **Segmental Sensory Innervation of the Hind Leg of the Cat.**—De Boer is instructor at the University of Amsterdam and first assistant at the physiologic laboratory. He has previously published research on the segmental innervation from the thoracal portion of the spinal cord. He here reports similar research on the lumbar and sacral cord, defining the segments in the hind leg of cats, and reproducing the dermatomeres in drawings. He never found them alike in any two cats, so he speaks only of averages, not normal standards.

101. **Depressions in the Skull as Sign of Rachitis.**—Quant called attention some time ago to a transverse and a vertical depression in the occipital bone which he found in 60 per cent. of the cases of rachitis examined. These depressions seem to develop more readily with skulls inclined to be long rather than broad. Lying on the side of the head during early infancy seems to increase the chance for this T-shaped depression. It was found in the mild as well as in the severe cases of rachitis, and it may be the first to appear of the signs of rachitis and the last to disappear. This may aid the practitioner in the diagnosis of rachitis. Above and on both sides of the depressions, the skull bone has the normal curve, but, owing to the depressions, the bone looks as if it bulged abnormally on each side and above. This is the reason why this skull anomaly has been called tri-bounocephaly, the three-hill skull, from the Greek term *bounos*, "hill." To detect the depressions on the living child, the head is bent over backward to relax the muscles. The horizontal depression can be most easily determined; drawing the fingers down along the scalp, to the side of the median line, the fingers sink into the transverse depression. There can be no doubt about the gully, as he calls it, as it lies above the point of attachment of the muscles. The finding of the transverse depression is usually enough; the existence of the other may be surmised. In his experience they were always associated. His roentgenogram of one case shows distinctly the long and wide transverse depression and the perpendicular groove with the "three hills" to right, left and above the T. The findings were distinct in 60 per cent. of forty-five rachitic children examined and less distinct in an additional 18 per cent.

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THE SECTION ON GASTRO-ENTEROLOGY AND PROCTOLOGY

RETROSPECT AND PROSPECT *

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The American Proctologic Society was formed in Columbus, Ohio, in 1899, with twelve charter members. It has maintained its position and regularity of meetings with success and benefit since that time. Prominent among the charter members will be found such names as Matthews, Tuttle, Pennington, Cooke, Adler, Beach, Evans and Earle. To this original coterie of men many honorable and conscientious workers have since been added.

The American Gastro-Enterological Association was formed about the same time. This association has maintained a regularity of meetings and position since the year 1897. Prominent among the founders were such men as Aaron of Detroit, Benedict of Buffalo, Einhorn of New York, Hemmeter of Baltimore and Stewart of Philadelphia. Dr. Stewart was elected first president, and Dr. Aaron was the first secretary, which office he held continuously for fourteen years. To these pioneers many have been added, so that this association is quite representative. Among these I gladly mention some of the ex-presidents and others of prominence well representing the type of men who now compose that organization: Stewart, Meltzer, Bettmann, Friedenwald, Cannon, Sawyer, Kauffmann, Stockton, Morgan, White, Jones, Lockwood, Bloodgood, Finney, Meyer and Bassler; and many others deserve to be mentioned.

Samuel J. Meltzer of New York was president in 1904 and 1905, and his two presidential addresses on the subjects, respectively, "Our Aims" and "The Men We Lost" were instrumental as introspective agents in building the society up to the splendid organization that it finally came to be. One of the best things that Dr. Meltzer ever did for the benefit of the association was to create a committee on admission whose duties consisted in investigating and scrutinizing the moral and scientific standing of each applicant.

As time went on, the course of events proved that societies of specialists, while pleasurable to their own members, did not offer much for the advance of their subjects to the rank and file of the profession. To meet as a small body, one specialist reading a paper to others, served a very minimum benefit, because, first, the good that such a society could bring about was limited, and secondly, it could not fulfil a service or play a large part in correcting the lack of knowledge in others owing to deficient experience, limited opportunities, and the lack of special courses of instruction in gastro-enterology and proctology in most of the medical colleges in this country.

The mutations of time have changed the status and practice of gastro-enterology and proctology from a condition of well-merited criticism to one of honor and distinction, and it is for this reason that the American Medical Association established a section recognizing these two fields of work. In its establishment there were only two dissenting votes, and we wish to extend our thanks to the House of Delegates of the American Medical Association for its considerate and complete action. It is now for us to justify their faith by showing superior quality of work in this section, which I am sure will be done. There have been pathfinders in the past, and we are the founders or establishers of the advancement today. I predict that this section will be second to none in point of importance and attendance, and that eventually it will be the second medical section in point of interest.

There is no one thing that at a stroke has done more to remove these fields from the hands of quacks, commercialists and the reproach of the past than the establishment of this section. Having been given the responsibility, and no responsibility comes without obligation, we accept both and intend to do our part, for we know that what we do will be broadly spread before the profession, and we are willing to be judged accordingly. We further recognize that all beginnings are difficult, and that the success of this section depends on our own exertions and the good will of all.

We hope that gastro-enterology and proctology will be especially taught in our medical schools, that the students of the future will at least have such fundamental knowledge of these fields that the public will be benefited thereby, and that when any member desires further knowledge, this section will be the annual mouthpiece to teach the things that should be known.

We hope our meetings will stimulate additional research, because there is much to be done. In the endeavor to be fair to both gastro-enterology and proctology, and considering our future section work as a whole, the following subjects are suggested for elucidation. There is much still to be learned about the effects of pyorrhea on the gastro-intestinal tract. Research work in connection with saliva has been neglected of late years. Should there not be a rearrangement of the classification of gastric conditions? What is the true etiology of gastroduodenal ulcer? Why is the stomach more often affected by cancer than any other internal organ? Do we know all we should about so-called precancerous lesions? Is the medical treatment of stomach and intestinal conditions known and

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* Chairman's address, read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

undertaken by the rank and file of the profession as it should be?

There is much of gallbladder pathology yet to be learned. Intestinal stasis is still being debated, pro and con, both as to its etiology and as to the proper treatment. What about bacterial flora in connection with intestinal toxemia? What is the cause of many chronic colonic conditions, to which likewise may be added changes in the mucous membrane of the rectum? Is the treatment of hemorrhoids a medical or a surgical question, and to what extent? What is the best service we can render in the treatment of the colon and rectum? What are we doing with pruritus ani, vulvae and scroti? There are also the roentgenray and the laboratory sides; abdominal conditions accompanying diseases of other organs, and so on almost ad infinitum.

It seems to me that during our discussion of the symposiums much can be said that would be of great benefit to the military service and the life of the boys in the Army as to the care of their digestive and eliminative tracts. Advice along this line could come from no more competent body of medical men than are in this section of the American Medical Association, and I believe it would be pertinent, notwithstanding the fact that we shall have many good physicians as officers of the Army, and without doubt they would welcome such advice. Nothing could make for greater efficiency in our Army than the keeping of the gastroenterocolonic tract in a normal condition. Possibly the offering of such advice at the present time may be too late, but I would recommend the appointment of a committee of five to formulate rules for the care of the gastro-intestinal tract. Such committee should deal especially with nutrition and elimination, and submit its report to the general committee of national defense, if it is found that the medical advisory board would welcome such advice, with the recommendation that a copy be placed in the hands of every soldier or his medical officer.

We have much to do in the line of research work, as well as considerable work of instruction. While congratulating ourselves on the formation of this section, let us enter into its future with a spirit that will bring the greatest good to the greatest number.

Controlling Malaria.—In cooperation with the U. S. Public Health Service, under the general supervision of the late Dr. R. E. von Ezdorf and his assistants, an experiment was conducted by the International Health Board of the Rockefeller Foundation at Crossett, Arkansas, in the practical control of malaria. The experiment was based on mosquito control without major drainage operations. It consisted of draining and regrading of natural streams so as to secure rapid offflow, the filling of bottoms, the digging of ditches, the removal of accumulated vegetation and the systematic use of oil and other larva-killing substances. As an indication of the results of these experiments, during the last six months of 1915 there had been 2,100 malaria calls on physicians in Crossett; during the last six months of 1916, there were 310 calls. In October, 1915, there were 600 calls; in October, 1916, there were 46 calls. In December, 1915, there were 100 calls; in December, 1916, only 4 calls. In Lake Village, 103 homes on plantations in the vicinity of the town were selected and divided into four groups to which different methods of prevention were applied. In the first group, control was based on screening; in the second, on prophylactic doses of quinin; in the third, on a combination of the two measures; a fourth group was kept under observation as a negative control without the use of any measures. The experiment has been completed but the results have not yet been announced.

"TRUTH ABOUT INTRASPINAL INJECTIONS IN TREATMENT OF SYPHILIS OF NERVOUS SYSTEM"

A REPLY

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An address by the chairman of the Section on Nervous and Mental Diseases, Dr. Bernard Sachs,[1] was read at the Sixty-Eighth Annual Session of the American Medical Association entitled "Truth About Intraspinal Injections in Treatment of Syphilis of the Nervous System."

If the statements contained in that article are accepted by the medical profession as a final and correct judgment of this new therapeutic procedure, an enormous amount of harm will result in that numerous victims of syphilis of the nervous system will be deprived of their only chance to regain health and economic efficiency. The attempt to discredit the value of serologic examination of the spinal fluid as a diagnostic procedure and guide to treatment should not be permitted to gain credence without a word of protest. In the address in question there are several statements that are entirely at variance with the experience of my colleagues and myself, who have employed the method over a period of years in the manner we consider technically correct. We have seen numerous patients, treated for months intensively by salvarsan given intravenously with little or no clinical improvement, entirely relieved of tabetic pains, crises, bladder symptoms and sexual impotence, and with a marked improvement in their ataxic gait after the institution of intraspinal treatment. The following clinical histories and serologic findings illustrate the contention that intraspinal treatment can and does accomplish much more than the intravenous method.

REPORT OF CASES

Case 1.—A man, aged 40, with tabes, who had had a chancre eight years previously, for one year had suffered from lancinating, neuralgic pains in the legs, girdle sensation, very marked ataxia, and inability to walk farther than a city block. He was intolerant to mercury, and numerous intravenous injections of salvarsan over a period of six months produced no effect whatever. His fluid findings after intravenous treatment were: cells, 46; globulin, + + + +; Wassermann test, + + + + to 0.2 c.c.; the blood was + + + +. He then received twenty intraspinal injections. The leg and girdle pains entirely disappeared; the bladder is normal, and the sexual power has improved. He has gained 50 pounds in weight, and is able to walk 4 or 5 miles without assistance or fatigue. For three years he has been back at his work. The serologic findings in the fluid and blood became negative after the sixteenth treatment, and have remained negative for two and a half years. The patient has had no clinical relapse.

Case 2.—A man, aged 43, with tabes, had had a chancre in 1899. For four years he had shooting pains in the upper part of the back and thighs, at times so severe that he was obliged to remain in bed for from one to three days. There were Argyll Robertson pupils; the knee and ankle jerks were absent; the reflexes of the upper extremity were sluggish, the right more so than the left; there was slight ataxia; the bladder was a little slow; there was an area of anesthesia over the left breast just below the nipple. The patient was nervous and irritable, and suffered from such profound mental depression that his business judgment and activity were markedly impaired. Before coming to New York he was intensively treated with salvarsan and mercury, with no abatement in the pains or other symptoms. The fluid findings when he first came under observation were: cells, 234; globulin, + + + +; Wassermann test, + + + + to 0.4 c.c.; colloidal gold test, 2332110000; serum, —. He received fourteen intravenous and fourteen intraspinal injections, which treatment has been followed by a complete disappearance of the pains, ataxia and bladder trouble. The patient's depression has entirely lifted, he has returned to his business with renewed interest and vigor, and he is able to carry through large enterprises with his former energy. He has gained 25 pounds in weight. His fluid findings have just become negative, eight months after the beginning of treatment.

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[1] Sachs, Bernard: Truth About Intraspinal Injections in Treatment of Syphilis of Nervous System, The Journal A. M. A., Sept. 1, 1917, p. 681.

Case 3.—A man, aged 24, with tabes, had had a chancre six years before. For three years he had had attacks of severe shooting intermittent pains in the upper and the lower extremities and in the chest. The pupils were unequal, irregular and very sluggish to light; the upper reflexes were present and equal; the left patellar and ankle jerks were very weak. The patient's sexual power and bladder were not impaired. He had had twenty-two injections of salvarsan besides several years' treatment with mercurial inunctions and injections when he came under my care. At this time the blood was negative. A lumbar puncture revealed: cells, 34; globulin, +; Wassermann test, + + + + to 0.8 c.c.; colloidal gold test, 1123210000. After combined treatment of six intravenous and six intraspinal injections the fluid became negative. The pains for which the patient sought relief disappeared after the third intraspinal treatment.

Case 4.—A man, aged 40, with cerebrospinal syphilis, had had a chancre in September, 1915, followed by secondaries for which he received immediately ten injections of salvarsan at weekly intervals, reinforced and followed by weekly injections of mercury over a period of nine months. In December, 1916, when he was first seen, he complained of lancinating pains all over the body, and occipital headaches. The pupils were unequal and irregular, the left sluggish to light, the right reacting promptly. The biceps, triceps, and radial reflexes were slightly more active on the right side. The knee and Achilles jerks were equal and normally active. A lumbar puncture made, Dec. 15, 1916, revealed: cells, 10; globulin, +; Wassermann test, + + + + with 1 c.c. Twenty-three intravenous injections were followed by some amelioration in the pains and headaches, but no change in the fluid other than a negative cell count. Ten intraspinal treatments brought about a complete cessation of the symptoms and a normal fluid.

Case 5.—A man, aged 30, with cerebrospinal syphilis, had had a chancre in 1906. Six years before I saw him he had a left external strabismus and facial palsy. When first seen in January, 1916, he showed the residua of these paralyses. All the reflexes on the right side were more active than on the left; the pupils were unequal, irregular and fixed to light; the bladder and the sexual power were normal. The patient was suffering from headaches and severe pains in the lower extremities. The blood was + + + +; the spinal fluid showed 148 cells; globulin, + + + +; Wassermann test, + + + + to 0.8 c.c.; colloidal gold test, 1123310000. After twenty-one intravenous injections of salvarsan, besides weekly doses of mercury, the cells were reduced to 9 and the globulin to + +; the Wassermann test was unchanged; the headaches disappeared, but the leg pains remained. The patient was then placed on a course of intraspinal injections, of which fourteen were given along with fourteen more intravenous treatments. The biologic results have been completely negative for three months. The pains, which were such a refractory symptom, left the patient after the sixth intraspinal treatment, and have not recurred.

Case 6.—A woman, aged 38, with syphilitic meningitis, gave no history of syphilis. In September, 1915, she developed symptoms of meningitis with severe occipital headaches and epileptiform seizures. The blood was + + + +. She was treated intensively by her physician with salvarsan intravenously and mercury, but without amelioration in her condition. When she came under my care in March, 1916, the spinal fluid revealed: cells, 86; globulin, + +; Wassermann test, + + + + with 1.0 c.c.; colloidal gold test, 1123200000. At this time she was placed on the combined intravenous and intraspinal medication. To the first two treatments she reacted with a chill, rise of temperature, nausea and vomiting. The reactions, however, grew less after subsequent injections until she was able to take them without any aftereffect. Four months from the beginning of treatment, and after the fifth injection, the Wassermann test on the fluid was negative, the cells numbered 17, and the globulin was +. The patient received three more intraspinal injections, after which only a trace of globulin persisted. The headaches disappeared entirely after the second injection, she was able to resume her family and social activities, and her whole physical condition improved markedly; her weight, which had been down to 89 pounds, increased to 100 pounds. Slight epileptiform attacks recurred at rare intervals for eight months and then left her free. A lumbar puncture, made July 11, 1917, revealed: cells, 3; globulin, very faint trace; Wassermann test, negative; colloidal gold test, negative. The blood was negative. In all she had eight intravenous and eight intraspinal injections.

It does not require the experience of a trained neurologist to convince these patients that their condition has been changed from hopeless invalidism to comparative good health. The advocates of intraspinal therapy have never claimed for the method that it should be used to the exclusion of the intravenous method, nor have they claimed that the choroid plexus is impermeable in all cases, and that remedies introduced intravenously could not reach the cerebral or spinal tissues. On the contrary, it has been repeatedly stated that many cases of syphilis of the nervous system are favorably influenced or cured by this method. In support of this statement I have cited cases in which such results were obtained, and again to emphasize the fact record the following:

Case 7.—A man, aged 32, with tabes, had had the initial lesion fourteen years before. There had been tabetic symptoms for four years with lancinating pains, loss of coordination, most pronounced ataxia, impotence, and impairment of rectal and vesical control. There were Argyll Robertson pupils; the deep reflexes were absent. The serum was + + + +. The spinal fluid, Feb. 10, 1912, revealed: cells, 34; globulin, + +; Wassermann test + + + + to 0.2 c.c. The treatment consisted of fifteen salvarsan injections intravenously, and inunctions and injections of mercuric chlorid. The patient has been free from pain for three years. His bladder is still a little slow, and his sexual power has not returned. His ataxia, which was such a prominent symptom that he was hardly able to walk across the room, is now scarcely perceptible, and he frequently walks from 5 to 10 miles a day. The serologic findings, Aug. 30, 1917, were: serum, —; spinal fluid: cells, 2; globulin, —; Wassermann test, — with 2 c.c.; colloidal gold test, negative. This patient, who on account of his physical disability in 1912 was obliged to resign his position and was unable to work for two years, has during the past two years resumed his occupation, which he follows with zest and enjoyment.

Case 8.—A man, aged 43, with tabes, had had a chancre twenty years before. Two years before he had double vision. When seen in January, 1911, his pupils were slightly irregular, but reacted fairly well to light and accommodation. The knee and ankle jerks were absent; the reflexes of the upper extremity were diminished, the left more so than the right. There was slight hypesthesia to pain and touch over the lower limbs. He was exceedingly nervous, and complained bitterly of his neuralgic pains. The serum was + + + +. The first lumbar puncture was made in November, 1912, and revealed 14 cells; globulin, + +; Wassermann test, + + + + with 1 c.c. The serum was negative. Treatment consisted of ten intravenous injections of salvarsan and several courses of mercury. There was a complete regression of the pains, which had been such a pronounced symptom, and of his nervousness and irritability. A second puncture made *four years* later revealed a normal spinal fluid. The blood has continued *negative,* and the patient reported recently *that he felt perfectly* well and never had a recurrence of his former unpleasant symptoms.

Case 9.—*A man, aged 29,* with cerebrospinal syphilis, had had a chancre five years before, and sexual impotence for two years. The left *pupil* was *slightly* larger *than the* right, and both were sluggish to *light; the knee jerks were* hyperactive, the left more so than the right. Otherwise the *examination* was negative. The serum was negative; *the* spinal fluid: cells, 46; *globulin,* + +; Wassermann test, + + + + to 0.6 c.c. Treatment consisted of twelve *intravenous injections* of salvarsan and several courses of mercury and mixed treatment. The sexual power gradually *improved. The blood and the* spinal fluid have been negative for three years.

In such patients there are no indications for intraspinal injection unless they become intolerant to arsenic (sensitization) by the occurrence of skin eruptions, or develop nephritis *or hepatitis. Should the latter* complications occur, we have in intraspinal treatment a reserve method of great value. Intraspinal medication is indicated when the clinical *symptoms* and serologic findings are unchanged after a fair trial of intensive intravenous treatment. I have repeatedly seen patients who have had from thirty to forty injections of salvarsan, with a negative blood but strongly positive fluid and clinical symptoms of nervous system involvement. Only a few days ago I saw a young man whose infection was two years old, who complained of pains in the legs and had beginning Argyll Robertson pupils. He had received thirty-two injections of salvarsan, over 100 injections of mercury, and many inunctions. The blood was negative. Examination of the fluid revealed: cells, *24;* globulin, ++; Wassermann test, ++++ to 0.4 c.c.; colloidal gold test, 1233100000. In these cases it is assumed that the choroid plexus does not permit the remedy to enter the fluid. This assumption is supported by the rapid improvement that follows intraspinal injections. When the blood *Wassermann* test is negative and the fluid test positive it is probable that interchange between the two fluids does not take place. Experience has taught me in such cases that the intraspinal treatment is the one of choice and is followed by results unobtainable by any other. Dr. Sachs' arguments as to positive pressure in the cerebral capillaries, the short contact of remedial agents with foci of disease, and the slow circulation of cerebrospinal fluid are interesting physiologic observations, but have little value in discrediting the results achieved. The logic of results accomplished must always supersede theoretical reasons why they could not occur. I could not convince my patients who have been cured or relieved of their symptoms by intraspinal treatment, after the failure of intravenous treatment, that, theoretically, it was impossible for such benefit to have taken place. They smile at theory in the light of accomplished results.

FINDINGS IN CASE 10

Date	Cerebrospinal Fluid Cells	Globulin	Wassermann	Colloidal Gold Test	Serum
10/31/16	944	++++	++++ to 0.2 c.c.	5555542100	8/12/16 —
11/24/16	90	++++	++++ to 0.4 c.c.	4444430000	10/31/16++++
12/ 6/16	31	+++	++++ to 0.6 c.c.		
12/16/16	30	++	++++ to 0.8 c.c.		
12/30/16	30	+++	++++ to 1.0 c.c.	1133320000	
1/12/17	50	++	++++ to 1.0 c.c.	1123310000	
1/27/17	28	++	++++ to 1.0 c.c.	1123210000	
2/10/17	20	+	++++ to 1.0 c.c.		
3/ 3/17	21	±	± with 1.0 c.c.	1123100000	3/ 3/17 —
3/24/17	18	±	+ with 1.5 c.c.		
4/14/17	8	±	— with 2.0 c.c.	1112210000	
5/19/17	8	trace	— with 2.0 c.c.	0000000000	9/ 6/17 —

Treatment 10/31/16-5/17/17: 6 intravenous injections salvarsan, 11 intraspinal injections salvarsanized serum (Swift-Ellis, fortified with 1/5 to 1/2 mg.), 18 injections mercury.

Certain patients in the early florid stage of syphilis during intensive salvarsan and mercury treatment show symptoms indicating invasion of the nervous system. The spirochetes enter the fluid and produce meningitis or endarteritis with resulting pupillary changes, *monoplegias, optic or auditory neuritis, etc. This early* invasive power of the spirochetes probably indicates a strain different from the usual one. The remedies cannot be given in sufficient concentration through the blood stream to counteract the spinal fluid invasion. Treated in the usual manner, these patients either die *from the intense meningitis* or become candidates for paresis or tabes or other types of cerebrospinal syphilis.

Twenty years ago I saw a woman with a chancre of the upper lip who developed less than six months after the infection a very intense syphilitic meningitis which was *followed* by unconsciousness and death. Dr. Reasoner[2] reported a case of syphilitic meningitis which appeared within six months after a primary lesion and *ended fatally three months later.*

Intraspinal treatment begun at this time acts with *infinitely more* rapidity than in older infections, and offers the only chance of cure and prophylaxis of the later degenerations. Such a case I had the opportunity of treating last year:

Case 10.—A man, aged 45, developed an initial lesion in April, 1916. The Wassermann test when he came under observation, April 26, 1916, was + + + +. He was immediately placed under treatment, and never developed any secondary cutaneous lesions. He had weekly injections of salvarsan and mercury. October 1, while on a business trip, he became very nervous and restless and felt nauseated. *A few days later his right arm* became numb, and for several days he had a transient aphasia. Previously he had had mild generalized headaches for about two weeks. He returned to New York in a few days, and a physical examination revealed a weakness of the right side of the face. The deep reflexes were very active, more so on the right side. *The pupils* were equal, and reacted promptly to light and accommodation. The outlines were very slightly *irregular. On puncture* there were found: cells, 944; globulin, + + + +; Wassermann test, + + + + to 0.2 c.c.; colloidal gold test, 5555542100. The accompanying table illustrates the rapid subsidence of these strongly positive findings under the treatment employed.

METHODS OF DIAGNOSIS AND TREATMENT

A proper conception of the syphilitic infection and the development of an efficient therapeutic procedure cannot be expected from physicians who see *only* the late degenerative effects of the disease. The intraspinal method should not be condemned because it fails to cure advanced paresis. Little can be expected from any method (intraspinal, subdural or intraventricular) in paretics who have reached the stage when institutional treatment is demanded. The future of such patients lies in the hands of physicians who can recognize the early beginnings of the malady and grasp the possibilities of early prophylactic treatment. When cerebral atrophy is present and the entire brain is permeated with spirochetes and their resulting lesions, the most to be hoped for is a modification or temporary arrest in the progress of the disease.

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[2] Reasoner, M. A.: Early Death from Cerebral Syphilis, with Successful Rabbit Inoculation, The Journal A. M. A., June 17, 1916, p. 1917.

Serologic examination of the fluid in all cases of early syphilis often reveals paresis in its incipient stages when it is amenable to a therapeutic attack. Unless we are to continue hopeless before such cases and watch the slow mental deterioration of the patients, we must employ all the means at our command to ascertain when and how the pathologic process begins and use logical and efficient treatment at the proper time to combat it. The teachers of syphilis in our medical schools must constantly emphasize the possibility of early nervous system involvement and formulate the methods of diagnosis and treatment. In this way and in this way only can we hope to limit the number of cases of cerebrospinal syphilis.

The symptomatology of syphilis of the nervous system is well defined after permanent changes have taken place and the question of relief is more or less uncertain. Early examination of the spinal fluid anticipates future degenerative changes, and permits the use of remedial agents at a time when they can be most effective. To deny the value of spinal fluid examination or to state that it reveals no more than a careful physical examination deprives the unfortunate patient of an accurate insight by the physician into his condition and the institution of efficient therapeusis. The advocates of intraspinal therapy have never claimed that degenerated cords could be restored by any method of treatment. It has been demonstrated, however, that the meningitis which precedes and causes such degeneration can be reached and cured, and further degeneration prevented. In such cases improvement in the clinical symptoms proceeds uniformly with the improvement in the spinal fluid. A patient with tabes whose fluid shows a positive Wassermann reaction with an increase in lymphocytes and globulin can be assured that his symptoms, like pain, crises, etc., may be relieved or cured and the further progress of his trouble arrested. It is true that in some cases the posterior nerve roots may be partially degenerated or compressed in such a manner by sclerotic tissue that pain may persist after all the findings are negative. These are exceptional cases and by no means the rule.

The statement by the author of the paper in question that claims are made for the intraspinal method by men whose chief interest was centered on a change in the Wassermann reaction, in a reduction in the cell count and in a change in the globulin reaction in the cerebrospinal fluid, rather than a change in the clinical condition of the patient, is a severe reflection on the intelligence of such men, and is entirely unwarranted by the facts. The patients are truly the first consideration, and the real object of medical art is to relieve suffering and cure disease. Unless these objects are kept in view, medicine is of purely academic interest and has little concern for the invalid. I have always advocated the close correlation of clinical and laboratory work, and for that reason have developed and conducted a serologic laboratory in which an attempt has been made to eliminate the discrepancies and contradictory reports which are so confusing to the pure clinician. In case the laboratory report does not correctly interpret the clinical diagnosis, an effort is made to ascertain the correctness of the laboratory report or to review or correct the clinical diagnosis. The latter is no more infallible than the former, as we are frequently able to show by laboratory findings that the clinician may be in error. To belittle or deny the value of laboratory investigation in syphilis of the nervous system disregards entirely the careful work of the past, which has thrown so much light on diagnosis and indications for treatment, or as a guide to treatment, and on the nature of the early invasion of the nervous system by the spirochetes.

I agree with the writer that in many particulars the advantages of the intraspinal method have been grossly exaggerated. It has been demonstrated to me very clearly by long continued intravenous and intraspinal therapy that paresis in the stage which comes to the neurologist cannot be cured by any method. Its course is, however, modified more rapidly, and longer periods of remission are secured by intraspinal treatment than by any other. It is questionable, however, if this delay in the downward course of paresis is an advantage to the patient or his family.

The writer's sweeping assertion that the same biologic changes in the fluid have followed intravenous treatment, or repeated lumbar punctures, or the introduction of the patient's nonsalvarsanized serum, I must absolutely deny. I have followed in my own laboratory numerous cases of spinal fluid examination in which no change occurred after the introduction of nonsalvarsanized serum. These spinal fluids were sent for examination and reported on without knowledge by the serologist, Dr. Jagle, as to their origin. I should like to have the author show me a single case in which the Wassermann reaction in the spinal fluid has been influenced by nonsalvarsanized serum or repeated lumbar punctures. The cytology of the fluid may be changed by repeated lumbar puncture, but the other phases are not so influenced. This was demonstrated in my clinic last year where patients were treated over a period of five months by the Ravaut method, that is, the addition of salvarsan direct to the spinal fluid. Excepting variations in the cell count, the fluids *remained unchanged*. The same patients are now being treated with the combined Swift-Ellis-Ogilvie method with very definite results both clinically and serologically. As regards intravenous treatment, it has never been denied that the same fluid changes may not be brought about in certain cases. Those who uphold the advantages of intraspinal treatment maintain and have demonstrated beyond any doubt that in cases not *influenced by* intravenous treatment the intraspinal treatment yields positive results. This is the entire contention, and not that one method or the other can accomplish similar results in unrelated cases.

CORRESPONDENCE OF CLINICAL SYMPTOMS AND FLUID CHANGES

Dr. Sachs states again that there is absolutely no correspondence between a change in the cerebrospinal content and the condition of the patient. To one who approaches the subject with an open mind and is willing to accept evidence, I can demonstrate at least a hundred cases in which there is a very direct relationship between the various phases in the cerebrospinal fluid and the patient's condition. Among them are more than thirty patients with tabes who have been cured of all their distressing symptoms, who have gained in weight and strength, and have regained business and professional activity. Their entire outlook on life has been changed. All these patients presented before treatment positive findings in the fluid. A number of them have been punctured from one to three years after all treatment was discontinued, and now show normal fluids. These patients may be definitely regarded as cured, as far as any further degenerative change is concerned. Ten patients with optic atrophy after one to two years show enlarged or stationary visual fields, and now have normal fluids; whereas before treatment all the phases were positive, including a cell count of from 24 to 150. The examinations of the eyegrounds and visual fields in these patients were made by ophthalmologists whose statements cannot be doubted.

In early syphilis with active meningitis, the symptoms rapidly subside with improvement in the pathologic fluid. In paresis and preparetic conditions a temporary remission may occur which is not indicated in the fluid excepting in the cell count and sometimes the globulin. In other cases, cerebral disintegration proceeds rapidly while the biologic condition improves. An active meningitis in these cases is influenced by treatment and registered in the fluid examination; but the deeper lesions progress as indicated in the failing mental powers. . I could demonstrate many cases of paresis and taboparesis in which the Wassermann reaction remains persistently positive after two or more years of intravenous and intraspinal injections; but observations like these should not discredit established facts and lead to the rejection of the invaluable information that is afforded by this kind of investigation. We have learned that a fixed or persistent positive Wassermann reaction in the higher dilutions indicates in the majority of cases a potential paresis. Such observations properly interpreted support rather than detract from the value of the biologic tests.

In tabes, excepting in abortive forms and the terminal stages of long standing cases, in meningitis and meningo-endarteritis, the clinical symptoms correspond fairly closely with the serology, receding or advancing with corresponding changes in the fluid. Improvement in the Wassermann and globulin reactions may appear slowly and show the results of treatment long after the clinical picture improves.

The relationship of the Wassermann reaction to skin and visceral lesions is analogous, for large nodular skin lesions may entirely disappear after a short treatment, while the serum reaction shows positive for a much longer time. We persist in treatment until the reaction is modified or becomes negative, to guard against a possible relapse. The same sequence is encountered in the central nervous system; namely, a marked improvement in symptoms, persistence in the Wassermann and globulin reactions, a relapse after the discontinuance of treatment, then further treatment, until finally a negative fluid is obtained, with no further relapses. We have seen this succession of events so frequently that we urge treatment until we obtain negative findings or are convinced that the persistence of a positive Wassermann reaction in the high dilutions of the fluid with a paretic curve indicate approaching paresis.

No consistent or permanent results will be achieved in the treatment of syphilis of the central nervous system until the correction of the clinical symptoms and biologic changes are appreciated by the physician under whose care these patients come. A correct and comprehensive grasp of the problem will come only to the one who has the opportunity over a period of years patiently to study and correlate the clinical as well as the laboratory side of the question. It would be unfortunate, indeed, for the victims of syphilis of the central nervous system if the views of Dr. Sachs as to the value of spinal fluid examinations were to prevail and our diagnostic and therapeutic methods revert to the time before Nonne showed the great value of such examination in disease of the central nervous system.

EXAMINATION OF THE FLUID

A systematic fluid examination in all stages of syphilis has thrown much light on the time when infection of the fluid occurs. It has indicated the probable time when the spirochetes are deposited in the cerebral tissues and in the spinal fluid which later cause paresis and tabes. It has given us a working hypothesis that offers hope to these unfortunate patients and enables us to anticipate the degenerative stages. A general appreciation of this theory of the nervous system infection will do much to lessen the number of incurable paretics and tabetics, and relieve our public and private institutions of the enormous expense of caring for them. As a result of accumulated experience, I have learned to place vastly more reliance on spinal fluid examinations in determining the progressive or stationary character of the infection and the prognosis that can be offered the patient, than from the objective or subjective manifestations that these patients present.

Among our tabetic cases we find a group which shows little or no change in the spinal fluid, while presenting typical Argyll Robertson pupils and changes in the deep reflexes. These cases we look on as abortive or rudimentary tabes in which the process has cured itself or has been influenced by the previous treatment that the patients have received. There is, of course, here no indication for intraspinal injections. In other words, the fluid must show pathologic changes before we are justified in introducing our remedies by this channel. The same argument applies to optic atrophy. If we find a relatively high cell count with other phases positive, we assume that the meningitis which has involved the optic tracts or nerves may be influenced by the treatment employed.

IMPORTANCE OF PROPER TECHNIC

The criticism and opposition to the method are largely due to the unfortunate results that followed the employment of the Ravaut technic, that is, the introduction of from 1 to 5, 6 or more milligrams of neosalvarsan added directly to the spinal fluid. A number of cases so treated have come under my observation with a traumatic myelitis causing bladder and rectal paralysis and with, in some cases, complete and permanent paraplegia. We have gradually learned, however, the tolerance of the cord to the remedial agent, and have evolved a technic that is free from the dangers mentioned. We have learned that low tabes with advanced degeneration will tolerate only the smallest doses, or is best treated by the original Swift-Ellis method. In high tabes or when the degeneration is of light grade, and in paresis, relatively larger doses can be used and at more frequent intervals. We have learned, too, that less irritation is produced and more benefit follows if we permit about 20 or 25 c.c. of fluid to accumulate in the receptacle attached to the spinal puncture needle and then add our salvarsanized serum to it. In this way it is diluted before entering the subarachnoid space. Two objects are accomplished by this procedure: first, the minimum of irritation, and second, the withdrawal and medication of a larger quantity of spinal fluid. If we medicate a larger amount of the spinal fluid, we believe in replacing it that it will reach more readily the more accessible perineuronal lymph spaces. Our results in optic atrophy and in cerebral meningitis support this supposition.

It is needless to say that the proper employment of a procedure so highly technical as this one requires the aid of trained assistants and a well equipped laboratory. It requires the judgment gained by experience as to the dose to be used and the intervals that should elapse between them. Rest periods between courses of injections are also important, so that we may properly estimate the clinical and serologic improvement. During the past three or four years we have given hundreds of injections with no deaths and with no more serious symptoms than those that follow an ordinary lumbar puncture. Many patients prefer the intraspinal treatment to intensive intravenous treatment, as the constitutional reaction is generally less marked. In cases treated intravenously in the intensive manner mentioned by Dr. Sachs, I have seen severe and fatal forms of generalized exfoliative dermatitis, persistent forms of gastro-enteritis, nephritis and obstinate cases of jaundice due presumably to fatty degeneration of the hepatic cells. The intraspinal treatment can be used without subjecting patients to these dangers, and aside from the advantages of the method and properly selected cases it is a valuable reserve treatment in patients who have lost their tolerance to salvarsan intravenously or who have developed arsenic dermatitis, nephritis or hepatitis. In acute cases of early meningitis it is the method of choice.

CONCLUSIONS

1. In tabes, certain types of cerebrospinal syphilis like meningitis, meningo-myelitis, meningo-encephalitis and in optic atrophy with positive findings in the fluid, intraspinal treatment succeeds in relieving or curing the conditions after failure of intravenous and other treatment.

2. It is the only procedure that can be employed after the intravenous treatment fails or when the patient develops an intolerance to arsenic.

3. With proper technic and experience, it is less dangerous than intensive intravenous treatment.

4. In paresis with stigmata of degeneration, the most to be hoped for is temporary arrest of the encephalitis. There are borderline cases of meningo-encephalitis which simulate paresis and which are curable by the treatment in question.

5. The criticism of the method is based largely on the results following imperfect technic and by its employment in cases without clear indications afforded by spinal fluid examination. Aside from these reasons, it has been condemned after short and imperfect trials. In some cases the existing lesions are activated by early injections and cured by persistence in the treatment.

6. The author's statement that it is regrettable that changes in biologic findings should be made the criterion of the efficiency of any therapeutic method is unfortunate from the standpoint of the patient as well as the investigator. With the exceptions noted in the body of the article, there is an intimate relationship between the clinical symptoms and the fluid findings. It is not difficult to select individual cases in which the Wassermann and globulin reactions are unchanged after prolonged treatment; but conclusions based on such exceptional cases are one sided, unfair, and fail entirely to interpret or correlate the fundamental principles involved. If reliance is placed on clinical improvement alone as a criterion of the action of our remedies and the fluid changes disregarded, few, if any, permanent cures will be achieved, and sooner or later the patient's condition will relapse. There is as much reason for basing the efficiency of a therapeutic procedure on the changes in the biology of the fluid as there is in using the blood Wassermann as a test of the value of treatment of syphilis in general. If we were to discard the positive knowledge acquired in the past few years as a result of systematic examination of spinal fluids in syphilis, we should have vague ideas as to the time the fluid is infected, no clear conception of the difference between active and abortive tabes, and no method of differentiating early paresis from conditions that simulate it. Neurasthenic states, headaches, phobias, vague changes in mentality, crises, or impairment in the sexual function are constantly overlooked or wrongly diagnosed by the pure clinician. Arteriosclerosis, chronic alcoholism, and diabetes may cause symptoms easily mistaken for the syphilitic syndrome.

7. The future of the syphilitic individual and the hope of anticipating or arresting the incurable degeneration is largely dependent on early and systematic examination of the spinal fluid.

8 West Seventy-Seventh Street.

ROENTGENOGRAPHIC EXAMINATIONS OF THE URINARY TRACT

REVIEW OF A SERIES OF ABOUT 500 CASES *

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This paper presents the results (some more and some less completely) obtained in 500 consecutive roentgenographic examinations of the urinary tract occurring in private practice. These cases were referred by 230 different physicians or surgeons, and it has been impossible to obtain full clinical records of all of them.

It will be appreciated that the accuracy and the extent of the clinical observations made by so large a group of men will vary considerably, and that the data derived from them cannot compare with the information which may be obtained from a hospital in which all of the work is done by a comparatively small group of men accustomed to working together.

In a few of the examinations, pyelography was combined with the ordinarily roentgenographic examination; but the number of these cases is small, and they have not been considered in this series. In a few cases our own records are incomplete, and these have been rejected from the series. Sometimes our records have been borrowed and not returned. There remain 455 cases of which we have fairly complete records of the

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roentgenographic reports. No case has been rejected from the list in which it is even suspected that an error was made in the roentgenographic diagnosis.

In practically every case, the report of the examinations was made from the roentgenograms alone and without taking into consideration the clinical history, the symptoms or the urine investigation. The results are, therefore, what may be obtained with the roentgenograms alone, not aided by pyelography and without any clinical help.

It must be obvious that some of the errors recorded might have been avoided had we used the combined method, and some of the cases reported doubtful or indeterminate would probably have been reported positive had we been in possession of the clinical data. On the other hand, it is likely that in a certain number of the doubtful or indeterminate cases, the possession of the clinical data might have led us into positive statements which would later have proved incorrect.

In order to allow sufficient time for subsequent observation, no examinations made later than Dec. 31, 1916, are included. All examinations in this series were made during 1914, 1915 and 1916, a period in which the technic was practically the same as that of today. The results, therefore, represent fairly what may be expected under present conditions from roentgenographic examinations alone. Before the beginning of the war, the photographic materials available were much more reliable than now, and the accuracy of results obtained in these examinations was somewhat greater.

In order to check up the results of the roentgenographic examinations and to obtain clinical data, the following questionnaire was recently mailed to every physician or surgeon referring a case in this series:

Date of roentgen-ray examination:

1. Was the roentgen-ray examination helpful to you in diagnosis?
2. Has the patient been operated on?
3. What did operation disclose?
4. Result of cystoscopy, if any:
5. Were calculi passed?
6. Did urine contain: (*a*) Blood? (*b*) Pus? (*c*) Tubercle bacilli?
7. Were symptoms due to lesions outside of urinary tract: (*a*) Appendicitis? (*b*) Oophoritis? (*c*) Salpingitis? (*d*) Colitis? (*e*) Gallstone? (*f*) Other causes?
8. Any additional information bearing on the accuracy of the result of the roentgen-ray examination:

The results of the roentgenographic examination of the whole 455 cases have been tabulated and are presented here, but we have succeeded in obtaining clinical data in only about 290 of these cases and some of these replies are incomplete. We have, however, accepted no reply which does not give a satisfactory answer to the question regarding the presence or absence of calculus.

The chief thing sought in these examinations is to determine the presence or absence of calculus. In the 455 cases of which we have complete records of the roentgenographic examinations, calculi were reported in 119 cases. In 314 cases no calculi were reported, and in twenty-two cases there were suspicious shadows which we reported as doubtful. The plates of some of these doubtful cases presented shadows which could be explained either by urinary calculi or by extra-urinary calcareous bodies. In all of these doubtful cases it was recommended that additional examination be made with the opaque ureteral catheter in the ureter, but in most of them this procedure was declined as unnecessary. In a few of the doubtful cases, the plates were not satisfactory because of incomplete preliminary clearing out of the digestive tract. Whenever possible, additional plates were made to correct these defects, but there remain some cases in which it was impossible to obtain an additional examination. In more than half of the unsuccessful and doubtful cases, we could not make the examinations as complete as we desired.

Of the 119 cases in which calculi were reported, twenty-two presented two or more calculi. The total number of calculi reported was 158. Of these, thirty-eight were in the left kidney; thirty-seven in the left ureter; thirty in the right kidney; twenty-eight in the right ureter; nineteen in the bladder, and six in the prostate. Of the 119 calculus cases, forty-nine were proved correct, either by operation or by the passing of calculi. In the remaining seventy of these cases we have been unable to obtain definite information that the calculi have actually been seen. We have regarded no case as proved unless the calculi have been recovered.

We have been unable to obtain reasonable evidence that there was any error in the diagnosis of calculus in any of these 119 cases reported positive. Of the doubtful cases, calculi have been demonstrated by operation in two cases and by passing of stone in three cases. In the remaining seventeen, we have no information as to calculus, but other probable causes for the symptoms have been reported in most of these.

Of the 314 cases in which the roentgenographic examination was reported negative for calculi, stones have been subsequently passed in five cases. In two cases stones were removed by operation. We have, therefore, seven proved errors in the series of 455 reports, a percentage of about 1.5 of the total number of cases examined. Perhaps it would be more accurate to reckon this percentage as 2.4 per cent. of the 290 cases in which we were able to obtain satisfactory replies to our question blank.

The more I have worked on these tables of statistics, the more I have been impressed with the impossibility of obtaining absolute accuracy. There are doubtless some errors in the clinical records that have been kept. Another source of error which has been difficult to avoid is that in several cases in which the report of the roentgenographic examination was negative, we were told that stones had been removed by operation, but on more careful investigation it was found that the calculi were passed or removed by operation prior to the time of the roentgenographic examination. This difference in the date was in some cases overlooked by the attending surgeon, who reported us in error, when in reality no mistake was proved.

Comparisons have frequently been made between the expert statistician and various kinds of liars, always to the disadvantage of the statistician. Since preparing this paper, my sympathies are all with the statistician.

While the chief function of the roentgen ray in examinations of the urinary tract is to determine the presence or absence of urinary calculus, other useful or interesting information is incidentally obtained. In many of the cases reported some information was given as to the size, outline, position or density of the kidney shadow. In this series there were reported such anomalies as sixty-two in size of kidney, seventeen in outline, fifteen in position and thirteen in the density of the kidney shadows. In a few of these cases the abnormalities of the kidney shadow were proved to be connected with a pathologic condition of the kidney.

In the course of these examinations many other calcareous bodies were shown in the neighborhood of the urinary organs. In this series we have reported eighty cases with phleboliths, ten with calcified mesenteric glands, three with intestinal concretions, and seven with gallstones.

Pathologic conditions of bones and joints are frequently observed in the course of examinations of the urinary tract. In this series there were reported forty cases of ostearthritis and five cases of other disease of the bone or joint. It seems likely that in a few of these cases, disease of bones or joints was the cause of the symptoms; but we are unable to obtain accurate data as to the number.

Anomalies in the development of the lumbosacral region are not uncommon. While these anomalies may be of only academic interest, they are shown perfectly well in roentgenographic examination of the urinary tract, and I think they should always be noted, since they may occasionally be proved to have an important bearing on the symptoms. In some of these cases it was found that one or both transverse processes of the fifth lumbar vertebra were enlarged and articulated with the sacrum and ilium. This anomaly is commonly described as sacralization of the fifth lumbar vertebra. We have noticed that a number of these patients presented the symptom of persistent pain in the back after some strain or unusual exertion, when no other cause could be found to account for the symptoms. This pain has been most frequent in cases in which there is unilateral sacralization. The pain is usually felt on the side opposite the sacralization.

In another class of anomalies, of which ten are reported in our list, there was incomplete union of the first sacral vertebra with the rest of the sacrum.

In some of these cases there were six vertebrae without ribs, between the twelfth dorsal and the sacrum. In others there were only four vertebrae in this region without ribs.

The answers to some of the other questions in our blank are given below. In answer to the first question as to whether the roentgen ray was helpful in diagnosis, 216 replied "Yes," and forty-four "No." In the remainder no answer was given. On looking over these replies we are impressed with the fact that the answer to this question was purely a subjective matter and depended somewhat on the weather or the state of digestion of the person answering. Many answered the question in the affirmative when our report of the roentgen-ray examination was negative and seemed to me of no value. In other cases in which the roentgen-ray examination gave much definite information as to size, number and position of calculi, the reply was that the roentgenographic report was not helpful.

The answer to Question 2 of our blanks showed that of the 290 patients concerning whom we have clinical data, seventy-two were operated on and 190 were not operated on. In forty-three cases cystoscopic examinations were made, and in 202 cases no cystoscopy was made. Calculi were passed in twenty-two cases, and in 229 cases it was reported that no calculi had passed.

The replies showed also that of the negative cases symptoms were accounted for by appendicitis in six; by ovaritis or salpingitis in six; by colitis in one; by gallstones in seven, and by other causes in nine cases.

In 242 cases the urine examination showed blood, and in 247 cases pus was shown.

In the forty-nine cases in which calculus was proved by operation or by passing the stone, the urine examined showed blood and no pus in seven cases; pus and no blood in two cases; both pus and blood in thirteen cases; neither pus nor blood in three cases, and in six cases no report. Of the remaining seventy cases reported positive for calculus, but not proved by operation or passing of stone, two presented blood and no pus in the urine; two pus and no blood; ten presented both pus and blood; three neither pus nor blood, and in forty cases there was no report. Of the five cases in which the roentgen-ray examination was doubtful, but in which the presence of calculi was proved, both pus and blood were found in the urine of two; one presented blood only, and one had no pus or blood and on one there was no report. Of the doubtful cases not proved positive, two had both pus and blood; three pus only; two blood only, and five neither pus nor blood, and five were not reported. Of the cases in which the roentgenogram was negative, nineteen revealed blood only; twenty-five pus only; fifty-four both blood and pus, and sixty-eight no blood or pus.

It will be observed that of the cases in which the presence of calculus was proved, about 52 per cent. presented both blood and pus in the urine. In these cases only 12 per cent. presented neither blood nor pus in the urine, and of those cases reported negative, nearly 41 per cent. presented neither pus nor blood.

The preparation of the data in this paper has impressed me with the difficulties of obtaining complete statistics of cases occurring in private practice, but I trust the results given will not warrant the usual uncomplimentary classification of the statistician.

I find that the number of our errors in the diagnosis of urinary stone is about twice as large as I had supposed, but the percentage is still smaller than that which is reported from examinations made in various hospitals or clinics. It is possible that if all the errors could be known, the percentage would be much higher; but I doubt it. A higher percentage of accuracy should be expected in private practice than in hospital or dispensary work. The success of the roentgen-ray examination for urinary stone depends largely on the intelligent cooperation of the patient. The average hospital or dispensary patients, especially those who speak some unknown foreign language, cannot be depended on to cooperate thoroughly in the success of the examination. They are very prone to breathe or to move during the exposures. In private practice more time is usually given to these examinations, and more plates are made. The economy practiced in most hospital roentgen-ray departments undoubtedly results in the sacrifice of accuracy. The duplication of plates and the use of the stereoscopic methods are not commonly employed in hospitals, and these procedures undoubtedly lessen the number of errors.

It is possible that the mode of life of some of the foreign population which forms a bulk of certain dispensary patients conduces to the formation of uric acid or urate calculi which are not readily demonstrated by roentgenograms. A small percentage of error must be expected even under the best conditions, but we should remember that there is no absolutely infallible method of diagnosis of urinary stone.

480 Park Avenue.

CLINICAL DIAGNOSIS OF LITHIASIS OF THE UPPER URINARY TRACT *

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If in this symposium the word "clinical" is to be used in distinction from "roentgen-ray" diagnosis, I shall have to throw up the sponge at once, because the absolute diagnosis of stones in the kidney or ureter without the use of the roentgen ray is impossible. A stone may be present anywhere in the upper urinary tract, either without giving any sign or symptom of its presence, or on the other hand, it may present any of a great variety of signs and symptoms such as would point to any of the various urinary troubles, or even such as would strongly suggest a diagnosis far removed from the urinary tract. Then again, a patient may present what we have been pleased to call a "typical" story of renal colic, bladder irritability, etc., and even show pus and blood in the urine, and yet no stone be present. This is nicely shown in a table by Eastmond as given by Keyes. In a series of eighty cases, sufficiently suggestive of stone to require roentgenographic examination, only twenty-three were positive, and of these, only eight patients complained of the so-called typical symptoms. On the other hand, of the fifty-seven which showed no stone, forty-four did have typical symptoms and in addition, thirty showed either pus or blood, or both, in the urine. In fact, according to this table, there is a better chance of finding a stone if the symptoms are indefinite than if they are typical, as only 24 per cent. of the latter had calculi, while 40 per cent. of the former were positive.

In a recent study by O'Neil of 273 cases in the Massachusetts General Hospital in which a preliminary diagnosis of nephrolithiasis was made, the same discrepancy was revealed between the original diagnosis and the real lesion. One hundred and thirty-three of these were house patients, and of this number, twenty-eight were proved to have no stone. Of these, no diagnosis could be made in four cases. The remaining showed a variety of lesions: Hydronephrosis, kinked ureter, movable kidney, and pyelitis were present eight times, while nephritis, appendicitis, gallstones, arteriosclerosis, abdominal glands, vesical calculus and chronic lead poisoning accounted for the rest. Of the 140 cases which got no farther than the outpatient department, more careful study showed only twenty-five with positive findings. The final diagnosis in the remaining 115 cases was as follows: Orthopedic lesions, such as back strain and sacro-iliac strain, accounted for thirty-six; no demonstrable lesion could be found in seventeen; genito-urinary lesions, including nearly every diagnosis, covered twenty-seven, while the rest were scattered far and wide from constipation to syphilis, and from hernia to tabes. Nearly every one who has written anything on this subject gives the same story.

From these two tables it seems that symptoms in themselves are merely suggestive at best and may even be misleading. A careful urinalysis likewise may lead us astray, but almost always in one direction. The presence of abnormalities may suggest a urinary lesion which is really not present, but a persistently normal urine in the presence of stone is more uncommon, although still to be reckoned with. In 150 cases in which the urine was carefully examined, Cabot reported persistently negative findings in twenty-one; of these, fifteen were ureteral stones and six renal. It seems almost needless to emphasize the fact that in the female, only a catheter specimen has any value, and that a centrifuged sediment should always be examined even in the absence of albumin.

A good roentgenogram is at the same time our best evidence as to the presence or absence of a stone, and likewise the stumbling block most likely to lead us into trouble, for implicit faith in roentgenography, without the confirmation of other means of diagnosis, will often carry us into needless, even disastrous operations; for the misleading evidence most often presented is the presence of a shadow very suggestive of stone, but which in reality has nothing to do with the urinary tract. The percentage of failure to show a stone which is present is very small if the case is in the hands of a good man, and is variously stated to be from 6 to less than 1 per cent. If the roentgenogram reveals a shadow which, in view of other attendant signs and symptoms, probably represents a stone, it still must be proved by means of stereoscopic plates taken with an opaque catheter in the ureter. A single plate is of value, but occasionally a calcified gland may lie in front of the ureter or kidney in such a way that without stereoscopic plates we cannot discover that it is not at all connected with the urinary tract. If the shadow is in the kidney region, two plates taken, one during quiet expiration and the other at the end of forced inspiration, answer much the same purpose.

If the ureter catheter meets an obstruction in the ureter at a distance from the bladder corresponding to the distance on the plate, and other characteristic signs and symptoms are present, the diagnosis is almost certain, but not quite. Cabot speaks of two cases in which a tuberculous gland in the mesentery of the large intestine caused pressure on, and obstruction to, a ureter with dilatation above. In such a case, stereoscopic plates and obstruction to a catheter will fail to make the diagnosis. The use of a wax-tipped catheter, in the hope that any stone present will make its mark, is likewise doomed to failure. But the injection of the ureter above the obstruction, and the demonstration of a dilatation, will show the need of operation to relieve pressure, and in spite of our inability to make an absolute diagnosis in these cases, we are consoled by the thought that operation is necessary. In case a stone is in that portion of the ureter opposite the sacro-iliac joint, it has been demonstrated by Dodd and Cabot that it may fail to show in the roentgenograms even though it is of considerable size and density. In these cases, a careful study with the wax-tipped catheter is necessary, and likewise an injection of the ureter above the obstruction is often of value,

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provided the obstruction is not too great to allow the passage of fluid. The latter procedure, which was condemned as being unsafe a few years ago, is today rendered nearly if not quite harmless by the use of either silver iodid emulsion or thorium. There is finally a small group of patients who have suggestive symptoms, a roentgenogram showing a shadow which might be a stone low in the ureter, with a normal or only slightly abnormal urine, and a ureter opening which will not admit a catheter. Cabot reported two such cases, and I have seen one since. In the last case, I cut the ureter opening freely with the operating cystoscope and still failed to get a catheter in more than a quarter of an inch. A wax-tipped catheter showed no marks, but as I have, on other occasions, failed to get anything conclusive when the catheter met a stone head on, I did not consider it good negative evidence. Operation failed to show a stone, and though some stenosis was apparently present, it did not seem enough to have entirely blocked a ureter catheter, or to have caused the symptoms.

With a shadow in the kidney region, the wax-tipped catheter is still less to be depended on, since a stone in any one of the lower calices will not be touched by a catheter, and accordingly no record will be left on the wax.

Some authors speak of the use of collargol injected into the pelvis and rendering visible a stone previously invisible. Although I have tried this method, using silver iodid emulsion instead of collargol, and have seen it tried several times, I have never seen it work.

Thus we see that in order to make an accurate diagnosis even of the presence or absence of a stone, we must use all the means at our command; but when we have done this, it is not enough, for the best interest of the patient demands that we should likewise find out the following facts: (1) the presence or absence of another kidney together with its functional ability; (2) the amount of damage done in the kidney having the stone, and (3) the position of the stone in the kidney. In order to do this, the use of other tests, as well as those already spoken of, is necessary. Urinalysis will disclose the presence or absence of any gross damage by its appearance, odor, amount of pus and albumin, and a stained sediment and culture will reveal the type of infection, if any. As stone and a negative urine are perfectly compatible, the presence of the latter is of value only in showing the absence of any damage or infection.

Cystoscopic examination will reveal the presence of another ureter opening which is functioning, and the passage of a catheter will allow the demonstration of the presence or absence of infection and the functional capacity of the well kidney. It is often important, especially in those cases in which previous examination indicates that operation is going to be difficult, to know as accurately as possible in which calix the stone is situated. This can be told very well by having one roentgenogram followed immediately by another, without moving the patient, and with the pelvis injected for the second picture. The second roentgenogram gives us also valuable information as to the amount of destruction of the kidney that has taken place. In fact, it may be the only thing which gives us a real indication of this damage. For even a large calculus pyonephrosis may not show on urinary examination the amount of pus we should expect, and because the presence of a stone can cause a reflex inhibition on the functional capacity of the kidney, a very low red test cannot always be relied on to prove the amount of damage it suggests. But when a roentgenogram reveals several stones at the lower pole of the kidney and then a second roentgenogram with the pelvis injected shows not only a grossly dilated lower calix but also a thinning of the cortex at the upper and middle calices, we may consider a nephrectomy the probable operation of choice. In those cases which present a single calix much enlarged and the cortex over it thinned as shown by the roentgenogram, with pelvis injected, we can be confident that a small nephrotomy opening will be our best mode of operation. But even with these procedures, a sufficiently accurate diagnosis as regards the condition of the kidney cannot be made to justify our promising to take out the stone and leave the kidney, as I have had one or two patients demand. Since a destroyed kidney may shut down around a single large stone, not only is the amount of pus very small, but the roentgenogram with injected pelvis discloses no gross dilatation of the pelvis, even though it is absolutely abnormal.

DIFFERENTIAL DIAGNOSIS

In the genito-urinary clinic of the Massachusetts General Hospital, it is fairly common for a patient to be referred with diagnosis of stone, with pain or colic typical in character and with pus and albumin in the urine, whereas a careful examination reveals tender, distended, nodular, seminal vesicles, no pus from the kidneys, and a negative roentgenogram. Treatment of these vesicles cures the stone. Two or three patients have volunteered the information when a finger was pressing on the vesicles, that "there is the pain now." I thought this was conclusive until a short time ago when I examined a patient who volunteered such a statement and found on roentgen-ray examination the shadow of what proved to be a large ureteral stone about half an inch from the bladder opening on the side corresponding to the one tenderest on pressure. Generally the colic of seminal vesiculitis is lower down in the back than the renal colic, and follows the crest of the ilium in a more characteristic fashion.

From a review of these cases of mistaken diagnosis it is evident that the appendix has been the greatest sufferer when error has been made. That a certain number of appendixes must inevitably be sacrificed in case of doubt is due to two facts too well known to require comment: 1. An acute suppurating appendix may be present without a corresponding amount of tenderness and rigidity. 2. A considerable amount of microscopic blood may be present in the urine, due to the pressure of an acutely congested appendix on the ureter. In cases of doubt, therefore, the appendix should be removed if for any reason it is not possible to take the time, or the apparatus is not at hand, to make a more accurate diagnosis. I have recently known a case in which a very good surgeon did delay operation in case of doubt with a resulting fatal peritonitis, so that I am sure it is much better to take out an innocent appendix than leave a guilty one. But the same thing cannot be said for other intra-abdominal lesions which do not require an immediate decision, and certainly it seems not only inexcusable but almost criminal to subject any person to operations such as are shown by the following two cases. The first patient, who showed five stones in the right kidney, had at the first operation a dilation and curettement. At the second operation the right ovary was removed and at the third operation the left ovary was removed. The second patient had (1) an operation for gallstones, though the gallstones were not found; (2) an appendectomy and a resection of the right ovary, and (3) a ventral fixation of the uterus. Not until eight years after the first operation was it discovered that a stone only three-quarters inch in greatest diameter was blocking the right ureter.

The cases that are complicated by orthopedic lesions are among the most interesting and likewise the most difficult to straighten out because it is seldom that an orthopedic surgeon cannot find postural strain, ptosis, or flatfoot; but whether the real diagnosis be urinary or orthopedic the patients may present themselves to either surgeon.

In the series of cases at the Massachusetts General Hospital previously spoken of, thirty-six cases in which the first diagnosis was renal stone showed orthopedic lesions, of which postural strain and abnormality of the fourth and fifth lumbar vertebrae made up fourteen, the remaining being spread among flatfoot, ptosis, scoliosis, hypotrophic arthritis of the spine, back strain and sacro-iliac strain. In four of these cases the urine was remarkably abnormal; in spite of a negative roentgenogram it seemed difficult to attribute all of the trouble to the orthopedic diagnosis, and it was thought possible that a small stone had been present and passed before the patient was seen. In twenty-four cases there were urinary symptoms, and of these cases the urine was normal in fifteen, so that nothing in the urinary tract could have been the cause of these symptoms. Moreover, some of these patients were relieved of their urinary difficulties when their orthopedic troubles were corrected. The relation between an abnormality of the back and urinary frequency is not at all understood and, indeed, very seldom recognized; but it certainly does occur, and when accompanied by pain and perhaps a suspicious roentgenogram it may lead us far astray. The following case is a good example: Miss X came for relief of urinary frequency and pain low in the left side, sometimes coming on in attacks. A diagnosis of ureteral stone had been made but never proved. The urine was normal; cystoscopic examination revealed a slight reddening around the left ureteric orifice, and the ureter would admit only a No. 5 catheter, but that perfectly freely. No stone could be demonstrated. The orthopedic consultant found marked postural strain, and after the use of proper support and exercises, the frequency and pain both disappeared.

CONCLUSIONS

No single piece of evidence, or combination of evidence, is sufficient to make an absolute diagnosis of a renal or ureteral stone. All chance of mistake should be excluded by using ureter catheters, wax-tipped catheters, stereoscopic plates, and roentgenograms with injected pelvis.

In all cases with indefinite symptoms, such as recurrent or chronic pain in the abdomen or back, even when a definite orthopedic abnormality is present, careful, repeated examination of the urine should be made, including a microscopic examination of centrifuged sediment, regardless of the presence or absence of albumin. In the female, such examination is of value only when the urine is obtained by catheter. Whenever operation is considered in any one of this group of cases, roentgenoscopy in addition to the foregoing examination is necessary.

87 Marlboro Street.

A CLINICAL STUDY OF LITHIASIS

BASED ON A SERIES OF ONE HUNDRED AND NINETY-EIGHT CASES *

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In urinary lithiasis our plan of action depends entirely on an analysis of the individual case, and the degree of our success in the treatment will be proportionate to the completeness of our understanding of the pathology presented.

An analysis of 198 cases which I have studied in hospital and private practice forms the basis for certain deductions relative to the formation of urinary calculi, the clinical picture presented, and a general outline of treatment.

Of the 198 cases, 111 were in males, 87 in females. Excluding the cases of calculi of the lower urinary tract, 12 of which occurred in females, there were 73 males and 77 females with calculi of the upper tract.

These figures are at variance with recorded statistics. The usual larger proportion of males is probably due to the fact that more women with urinary symptoms consult the gynecologist than the urologist, and a fair comparison could not be obtained.

INCIDENCE ACCORDING TO AGE

Age of Patients	No. of Cases
1 to 9 inclusive	1
10 to 19 inclusive	3
20 to 29 inclusive	32
30 to 39 inclusive	55
40 to 49 inclusive	43
50 to 59 inclusive	29
60 to 69 inclusive	28
70 to 79 inclusive	5
80 to 89 inclusive	2
Total	198

The relatively large number of patients past middle life presented vesical calculi.

In the formation of urinary calculi, two predisposing factors have stood out most prominently. These are (1) a gastro-intestinal disturbance, and (2) disturbed drainage along the urinary tract. The question seems to be more one of body elimination than one of intake.

The most important pathologic condition of the gastro-intestinal tract in this relation to lithiasis is some degree of stasis. The causes of stasis can be ascertained only by a study of the entire alimentary tract.

Through intestinal stasis, the chemistry of the blood supplied to the kidney is altered and bacteria in large numbers enter the urinary tract.

The effect of disturbed drainage of the urinary tract is most easily studied in the bladder. The rapidity with which decomposition takes place and calculi form when residual urine accumulates, we have all noticed in cases of vesical obstruction with retention. There is no reason why the same action does not take place in the kidney.

Interference with kidney drainage is most often due to abnormal mobility. The mobility may be slight and still cause a kinking at the ureteropelvic junction if the ureter is fixed. Of the 77 females showing calculi of the upper urinary tract, in 51 the calculi were on the right side, in 22 on the left, while 4 were

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bilateral. In 39 of the right-sided cases, and 11 of the left-sided, a certain degree of mobility, interfering with drainage, could be demonstrated.

As all ureteral calculi are probably renal in origin, they may be grouped together in this consideration.

In the males, twenty-eight were right-sided, thirty-eight left-sided, and five bilateral. Unfortunately, in but few of these cases was the renal mobility ascertained, but in several it was strikingly marked. One patient presented a pelvic kidney, and several others showed a well-marked prolapse. Abnormal mobility will no doubt be demonstrated more frequently in males if more careful examinations are made. Palpation which fails to reveal the lower pole of the kidney on deep inspiration does not exclude this possibility. Better muscular development in the male interferes with palpation. Recently, during the examination of a patient, a kidney which could not be palpated on deep inspiration dropped to the brim of the pelvis while the patient was standing erect.

Three patients with renal calculi gave a history of injury. One patient presented a calculus with hypernephroma.

The symptoms presented by renal calculi may be of so slight a nature as to pass unnoticed for many years, as in the following cases:

Case 1.—A man, aged 33, had had a vesical calculus removed three years previously. He came for consultation for vesical irritability, suspecting another vesical calculus. Investigation disclosed a branching calculus completely filling the pelvis and calices of both kidneys. The patient positively refused operation, saying he had had no pain or discomfort.

Case 2.—A woman, aged 65, entered the hospital with the diagnosis of appendicular abscess. A definite mass was palpable in the lower right quadrant. An examination of the bladder revealed an obstruction of the right ureter with thick pus. On dislodging the plug in the ureter, and by gentle pressure on the abdominal mass, 16 ounces of thick, foul-smelling pus were evacuated through the cystoscope. Exploration of the abdomen showed a calculus the size of an orange in a shell of a kidney.

How long the calculus had been present in these cases, and in many similar ones, one cannot say. I recently removed a calculus from the left kidney pelvis of a man, aged 34, who was sent to me to be treated for a chronic urethritis. There were no symptoms referable to the kidney, although the kidney pelvis was so surrounded by lymph exudate and fat that the calculus resembled the stone in the center of a peach. The vesical irritability entirely disappeared after the removal of the calculus.

Pain is the most constant symptom of renal calculus, and was present in some form in thirty-five of forty-three patients. In renal calculi the pain was never severe, except when the calculus was small and located in the pelvis or in a calix, so as to interfere with the urinary flow, thus increasing intrarenal tension.

A dull ache localized in the costovertebral angle was the most typical symptom, but was not constant, and was evidently due to local infection. Radiation along the course of the ureter was present in seven cases in which the calculus was located at the ureteropelvic junction. Other radiations noted were to the opposite kidney region, chest, right lower quadrant, testes, thigh, and entire back. Invariably the larger the calculus, the less severe the pain, and in eight cases only vesical symptoms were present. In four of these cases the kidney had gone on to almost complete destruction. Tenderness in the costovertebral angle or anteriorly in the right upper quadrant was elicited in thirty-two case, and the kidney was palpable in only eighteen. Roentgenograms were positive in all but two of the cases of renal calculi. In these two a diagnosis of an obstruction at the ureteropelvic junction was made, and at operation a calculus was found. The character of the urine was found in sixteen cases to be of no aid in establishing a diagnosis of renal calculus, while in the remaining twenty-seven cases blood and pus cells were found in varying quantities. Profuse hematuria was present in four cases. Colon bacilli were found in thirty-one cases, staphylococci in four. In two bilateral cases the entire renal cavity was filled with phosphatic deposit.

If a calculus does not increase in size too rapidly, it passes from the kidney into the ureter, and in its passage through this channel may give rise to a clear-cut picture of renal colic, or to a greater variety of symptoms than any other abdominal condition.

Of 150 cases of calculi of the upper urinary tract, 107 were ureteral calculi, and while they were found lodged at almost every point, from the ureteropelvic junction to the vesical orifice of the ureter, eighty-six were lodged in the lower 12 centimeters, and sixty-five of these in the last 6 centimeters. The symptoms in these cases extended in duration from a few hours to fifteen years.

The young woman whose condition is next described furnishes a typical case.

Case 2.—A woman, aged 21, twelve hours before admission to the hospital, was seized with a sharp pain in the right lumbar region, accompanied by vomiting and shock. The pain soon radiated to the groin. The following morning the pain was most severe in the right lower quadrant, and there was an urgent desire to urinate. Urine was scanty. Examination of the bladder revealed edema about a functionless right ureteral orifice. A ureteral catheter encountered an obstruction 2 cm. from the bladder. A roentgenogram revealed the catheter in contact with a small shadow. The ureter was dilated and a small calculus removed with ureteral forceps, with complete relief and no return of symptoms.

Case 3.—A woman, aged 44, for fifteen years had had pain in the right side of the abdomen, not localized. She complained of indigestion, constipation, flatulency, painful menstruation, and frequent burning urination. She had had a nephropexy, an appendectomy and a ventral suspension; the right ovary had been removed, the bladder irrigated, and medical treatment given, with no relief. Investigation showed a calculus lodged in the right ureter, at the pelvic brim, with pyelonephritis. Removal of the calculus gave partial relief of symptoms.

Between these two extremes were all types and degrees of abdominal symptoms, but pain was a fairly constant factor in all cases of ureteral calculi.

Eighty-six of the 107 cases of ureteral calculi gave a history of pain on the affected side, 4 of referred pain on the opposite side, 65 had a definite colic, and 45 had had from two to eleven attacks; 35 gave a history of having previously passed calculi.

Of the 65 cases of calculi lodged in the last 6 centimeters of the ureter, 56 complained of urinary symptoms.

Cystoscopic examination revealed the calculus lodged in the mouth of the ureter in 4 cases. Edema about the orifice was present in 47 cases. A deflection of the stream of urine from the ureteral orifice was noted in several cases in which the calculus was lodged in the intramural portion of the ureter. The urine showed pus cells or blood cells in 81 cases;

was normal in 22 cases. Crystals were noted in 18 cases; colon bacilli showed a growth in 62 of 78 cases in which a bacteriologic examination was made.

In 75 per cent. of the cases a definite obstruction, partial or complete, was evidenced by passing ureteral catheters and bougies. In 11 cases the calculus could be located by palpation through the vaginal vault and in four males by rectal palpation.

No roentgenograms were taken of 16 patients who passed calculi subsequent to the cystoscopic manipulation. In the remaining 78 cases a roentgenogram was made with opaque catheters or bougies in position. A positive plate was obtained in 56 cases. The 22 patients not showing a shadow passed calculi following manipulation. These calculi were all small, and were either phosphatic or uric acid stones. A collection of crystals causing a definite colic was present in six cases. A complete obstruction was encountered in each case, and was relieved by intra-ureteral manipulation.

I have made it a practice for the past five years to boil the catheters and bougies, thus rendering the bougie soft enough to pass through almost any kink, or to coil about a calculus. Often the tip of the bougie is bent so that it is hooked, and by passing the bougie, twisting it as it advances, the calculus, which would often otherwise be passed by, is encircled by the bougie. In this manner, with stereoscopic roentgenograms to eliminate extraneous shadows of phleboliths, calcareous glands, atheromatous patches, enteroliths and gallstones, a diagnosis may be made in two thirds of our cases. In the remaining third, a ureterogram, the calculus being coated with collargol, or the employment of wax-tipped catheters, may be necessary, and all methods may be negative.

I have no doubt that in some of our cases which were passed by as negative, with ureters free to a No. 7 F. catheter, with negative urine and roentgenograms, a calculus may have been lodged in a sacculation of the ureter which has since caused symptoms. I am inclined to believe that the wax-tipped catheter should be used more frequently in these negative cases, and it is wise to have all patients report for subsequent examination.

A differential diagnosis between ureteral kinks, urinary tuberculosis, renal tumor, and stone often may be difficult, and may be made only by repeated examinations.

Calculi in the lower ureter may cause symptoms so like appendicitis that it has almost become routine to pass a ureteral catheter in all cases of right-sided pain. Pelvic disease and acute intestinal lesions in connection with calculus in the lower ureter, gallstone colic, acute gastric and intestinal conditions, must be excluded in calculi lodged in the upper ureter and kidney. This should always be possible with the means at hand, although the possibility of the presence of more than one lesion should be borne in mind.

The treatment of calculi of the upper urinary tract can now be laid down on definite principles.

A renal calculus remains in the kidney and increases in size, acting as a menace to the kidney and to the patient, or it passes into the ureter. If it remains in the kidney it should be removed, unless there is contraindication to operation from the condition of the patient, or of the opposite kidney, and the sooner it is removed the better. By its remaining, more or less of the kidney will be ultimately destroyed. When the kidney destruction is advanced, as proved by pyelogram and functional tests, or when many calculi are present throughout the kidney, a nephrectomy may be necessary, as in four of the cases of this series. In cases of large branching calculi the kidney may have to be split, as in two cases. The remaining cases can be relieved by pelviolithotomy.

If the calculus passes into the ureter, and does not enter the bladder after manipulation with ureteral catheters, bougies, and dilatation of the lower ureter, it should be removed. That the majority of ureteral calculi will pass, certainly after manipulation, is proved by this series. Ninety-two of 107 calculi lodged in the ureter were passed subsequent to or removed by cystoscopic manipulation. Only fifteen were removed at operation.

Calculi should not be allowed to remain in the ureter too long. Stricture of the ureter, or damage to the kidney from back pressure and infection, will often be the result. The sooner the patient is seen after the initial attack of colic, the better the chance of assisting the passage of the stone.

While all methods of manipulation and injection have been applied, dilation of the lower ureter and manipulation of the calculus with catheter and bougies, in an attempt to loosen and change the axis, was deemed of advantage. There is no doubt that this is worth repeated attempts. Several calculi have been followed with roentgenograms in their descent after manipulation, showing the advance of the calculus with each attempt. This process has been repeated as many as eight times, but the first few attempts will usually be successful if the calculus is going to pass. An attack of colic is often brought on at the end of the manipulation, and denotes that the calculus has shifted its axis and is obstructing the ureter. Large quantities of water will supply the pressure above, and the stone will be passed.

A method which has proved successful, even in as large a culculus as the one exhibited (3.5 by 1 cm.), is to hook the end of the ureteral bougie and twist the bougie as it is advanced along the ureter, coiling it about the calculus and then applying traction. A calculus was extracted two weeks ago in this manner. This patient had undergone a ureterotomy for a calculus one quarter the size, lodged at the pelvic brim. A fistula resulted which healed only after inserting an indwelling ureteral catheter, which was left in position for ten days. A diverticulum formed at the point at which the calculus had been lodged. Twelve calculi have since formed in this pouch, descended into the lower ureter, and have been extracted with ureteral forceps, or passed after intra-ureteral manipulation.

How large a proportion of these ureteral calculi would have passed had nothing been done, it is impossible to say; but it is probably fair to assume that 50 per cent. would have been recovered. Only six patients giving a history of ureteral colic, negative at examination, returned with a history of subsequent attacks and passing a calculus.

Fifteen of the calculi removed at operation were approached extraperitoneally, and one transperitoneally.

There were two deaths out of the forty-three patients operated on for renal calculi, both caused by uremia, in bilateral phosphatic calculi. The operation in each instance was undertaken against advice. One patient with ureteral calculus died six weeks subsequent to operation. The cause of death could not be ascertained.

In this review of 198 cases of lithiasis, several points are worthy of note with regard to the forty-four cases of vesical calculi. A definite history of renal colic, with relief of pain without passing the calculus, was given in fourteen cases, and in the remaining thirty it was found that the bladder was the seat of an infection and was carrying residual urine. The cause of the retention was prostatic obstruction in the males, and cystocele in the females —a rather convincing argument that infection and urinary stasis play an important rôle in their formation.

The diagnosis of vesical calculus should be simple. Seldom is it impossible to pass a small cystoscope into the bladder and make a diagnosis by sight. A roentgenogram, in the absence of a cystoscopic examination, is often sufficient.

Of the forty-four cases, the calculi were crushed and evacuated in thirty-three, and removed by cystotomy in eleven cases. Litholapaxy is still an important procedure in cases not requiring an operation on the bladder or prostate, and when supplemented by the use of the cystoscopic lithotrite, should be the method of choice more often than it is.

Prostatic calculi, the result of long-standing prostatic infection, were found in three cases. The diagnosis was easily made by palpation. Undoubtedly they are occasionally overlooked, the diagnosis of malignancy being made. More frequent roentgenograms in patients giving prostatic symptoms of long standing might disclose more cases of prostatic calculi. The treatment is by prostatectomy.

One case of calculus in the seminal vesicle was noted, and a renal calculus with a clear history of colic followed by retention showed the calculus lodged in the prostatic urethra. This was dislodged with forceps applied through the endoscopic tube, and was passed by the patient.

RECAPITULATION

Intestinal stasis is an important predisposing factor in the formation of urinary calculi. Urinary stasis and infection are immediate predisposing factors. Renal mobility plays an important rôle in this consideration.

Renal calculi may be single or multiple; small or large; unilateral or bilateral; located in the cortex, the pelvis or a calyx; or they may be branching, completely filling the cavity of the kidney.

Local symptoms may be absent, slight, or acute. Physical signs may be absent or definite. A diagnosis of the presence of a calculus should be made by cystoscopic and roentgenographic methods. Contact of the tip of a roentgen-ray bougie will verify the diagnosis in many cases of renal calculi, but may have to be supplemented by pyelograms, not only to locate exactly the stone in the kidney, but also to show the extent of kidney destruction. Data so obtained make it possible to outline the operative procedure which will result in a cure, and after-care may prevent recurrences.

Ureteral calculi are common. They may give rise to indefinite abdominal symptoms, or to typical colic. Fifty per cent. of ureteral stones will pass; 75 per cent. will be passed following intra-ureteral manipulation, which consists in dislodging the calculus and dilating the ureter below.

Vesical calculi are comparatively rare, owing to earlier diagnosis and the better treatment of vesical obstructions. When found, they are smaller than formerly, owing to the earlier diagnosis, and can often be removed by litholapaxy, unless a prostatectomy is necessary.

Prostatic calculi should be suspected in long-continued prostatic suppuration. They should be diagnosed early and removed by prostatectomy.

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ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. CALDWELL, YOUNG, JR., AND BUGBEE

Dr. Henry K. Pancoast, Philadelphia: After Dr. Caldwell's numerous references to the unquestioned value of the roentgen diagnosis of urinary calculus, all must agree that a roentgenographic study should be made in every case in which calculus is suspected. A careful examination should be made of the entire tract, for the reason that a stone may not be where it is suspected, may be on the side opposite to the symptoms, or there may be calculi on both sides. In the second instance the stone may not be found, and in the third, the patient's life may be endangered by operation if only one kidney or ureter has been examined. Even though a calculus shadow is found only on the side opposite to the symptoms, a small uric acid stone or one hidden by bony structures may be present and missed and be accounting for symptoms.

When one considers the numerous sources of error it is remarkable that the percentage is so small, as Dr. Caldwell has stated. Most of them have already been alluded to in the papers, but a few have not. The most important and most frequent is careless or faulty preparation of the patient. Adequate preparation means the withdrawal of food for nearly twenty-four hours before the examination, complete evacuation of the intestinal tract to eliminate both fecal contents and gas, and the withdrawal of drugs, especially in pill or tablet form. Possibly salol is the worst offender. Of course, foreign bodies in the intestinal tract other than pills form a small percentage of sources of error. Dark moles on the back constitute a well known source. Phleboliths in the pelvic veins are extremely troublesome and cannot always be eliminated even by the ureteral catheter and stereoscopic plates. Calcified mesenteric glands frequently give trouble, especially when near the renal region.

The last essayist mentioned fecaliths, and when these are in an inflamed appendix close to or adherent to the ureteral region they may be misleading clinically and roentgenographically. In one instance a dermoid cyst containing a single tooth and pressing on and obstructing a ureter led us to a diagnosis of a ureteral calculus because of the tooth shadow in the ureteral line. Finally, many stones, especially uric acid calculi, may be hidden by the bony parts or may not be seen in very stout persons.

Dr. W. F. Braasch, Rochester, Minn.: Because of this obscurity of symptomatology the following rules have been made at the Mayo Clinic:

Roentgen-ray examination is made (1) when abdominal pain is not definitely localized; for example, in the gall-bladder, the appendix or the pelvis; (2) when, though the pain is definitely localized in these organs, there is pus or blood or a past history of pus or blood in the urine, and (3) in the absence of abdominal pain, if there is a past history of pus or blood, or if microscopic pus or blood is found in the catheterized specimen.

The leaded catheter is of value in the diagnosis of ureteral calculus only when the calculus is 2 cm. or more away from it and when it is in close apposition and cannot be passed beyond the calculus. When the leaded catheter is in close apposition to a suspected ureteral shadow it is of little diagnostic value. Nor does a stereoscopic examination help much, because, even though the stereoscopic examination reveals that the leaded catheter is a centimeter distant from the shadow, it does not mean that the shadow is extra-ureteral.

In such doubtful cases a more exact method of interpretation is available in the ureterogram. This method should be employed only when others have failed, and when the introduction of the catheter is not obstructed. The use of the ureterogram is restricted because the procedure is not without danger. Any fluid injected beyond an obstruction, whether it be boric acid solution, silver or thorium, will cause damage to the parenchyma of the kidney unless drained out. If an opaque medium is injected beyond an obstructing stone in the ureter, a great deal of trouble will result in a small percentage of cases, so much so that the kidney may have to be sacrificed. Therefore, a ureterogram should usually not be made unless the catheter can be passed beyond the shadow and the injected fluid can be removed. Of the various solutions, thorium is undoubtedly the best, because with careful technic it can be removed. The catheter should be allowed to remain for a few minutes after washing out the renal pelvis.

Pyelography has also proved to be a valuable method in the diagnosis of shadows situated in the renal area. It may be used more freely in the pelvis of the kidney because the fluid is seldom obstructed by a stone. Further, pyelography is of value not alone in the diagnosis of shadows in the kidney, but also in the localization. Those of you who have had experience in searching for a stone in a large, congested kidney will appreciate any effort made by the diagnostician to localize exactly any small shadow in the kidney.

Dr. Herman L. Kretschmer, Chicago: The stereoscopic pictures with shadowgraph catheters are of value in a certain percentage of cases. The stereoscope will show in a certain number of cases a definite interval between the suspicious shadow and the catheter. I agree with Dr. Braasch that in some cases the stereoscope will not help out. In those cases the ureterogram is in perfect order. In the doubtful cases it would be well to use some silver salt instead of the thorium in making the ureterogram. Kümmel in Hamburg first called attention to the fact that shadows were made more positive by silver salts.

Dr. Bugbee's statement, I think, was a little bit too conservative when he said that about 50 per cent. of these stones can be passed or removed by noncutting operations. The percentage is much higher. Probably all of these ureteral stones which have not remained in the ureter so long as to produce a stricture can be worked down or passed by the use of papaverin and oil injections. Thus far I have been rather successful. The idea of Dr. Bugbee of turning the catheter around the stone and pulling it out is rather unique. I wish in closing he would tell us just how he curls the catheter around the stone.

The point has been emphasized several times that the entire urinary tract should be roentgen rayed. Frequently patients have just one part of the urinary tract rayed and they are operated on after a diagnosis made from one picture. I have in mind two patients who had been operated on elsewhere and a kidney removed, and they have calculi now in the remaining kidney. It would be interesting to know whether they had bilateral stones in the first place, or whether the remaining stone has formed in the kidney since operation.

Dr. Abraham Hyman, New York: In a series of seventy-four cases of ureteral and renal calculus we have had 10 per cent. of negative roentgenograms. In vesical calculus more than 61 per cent. of the stones failed to show. A large number of these negative roentgenograms were in prostatics, which probably accounts for this high percentage. In thirty-four of the seventy-four cases of ureteral calculus the ureteral catheter was obstructed at the site of the stone, and in 50 per cent. of these cases there was a considerable difference in the output of indigocarmin; it was either absent or considerably diminished.

As regards the wax tipped catheter, it was of considerable value in but one case. In this patient, a rather stout woman, there were three negative roentgenograms. She had pus in the urine and radiating pain in her side. The wax tipped catheter showed distinct scratch marks on two occasions.

During the past few years three patients have been operated on in the service for renal calculus in which most of the findings were considered positive. The Roentgen ray demonstrated distinct shadows in the renal region. Unfortunately, the symptomatology and the ordinary methods of examination were thought to be so characteristic that other methods, such as pyelography, the wax tipped catheter and stereoscopy, were not employed. At operation there was no calculus to be found in any of the three cases. In two, we could distinctly feel retroperitoneal calcified glands which undoubtedly cast the shadows. In the other case the symptoms were found to be due to a twisted ovarian cyst. This was not discovered until the patient returned to the hospital six months later, complaining of the same symptoms. She was operated on and a twisted ovarian cyst was found.

Concerning urinalysis, we have had a few cases of renal and ureteral calculus in which the urine examination was entirely negative—no pus or red blood cells—so one cannot rely absolutely on negative urinary findings.

Dr. James W. Hunter, Norfolk, Va.: As a roentgenologist I have made about 1,200 examinations. Three cases were most remarkable. A man of 45 whose only complaint was night sweats showed no emaciation and had no cough. An examination of his right kidney showed the most beautiful growth of dumb-bell and mushroom kidney stones that I have ever seen and its removal effected a complete cure. A woman presented all the typical symptoms of kidney colic. The kidney was negative, but at the ureteral orifice was found a shadow typically cigar shaped. Cystoscopic examination and the passage of a bougie showed that the shadows coincided. She was operated on by a prominent surgeon and nothing was found. She was examined about a year afterwards in consultation with another surgeon. The same symptoms and the same shadow were found. On operation nothing whatever was found near the ureteral orifice. The ureter was dilated and inflamed. The cigar-shaped calculus was found in the pelvis of the kidney. When the woman was up and about the calculus would descend to the lower end of the ureter, but when she remained in bed it worked back up to the pelvis. This woman is well now.

Dr. H. A. Fowler, Washington, D. C.: It has been definitely brought out that there are no pathognomonic signs or symptoms of stone in the kidney or ureter. A stone may be present in the kidney without giving rise to any symptoms whatever, either on the part of the kidney or of any other organ.

On the other hand, there may be no signs or symptoms referable to the kidney itself, the seat of the disease, but the symptoms are entirely abdominal, or referred to some abdominal organ. This has been shown by the statistics of Braasch and Cabot particularly.

The demonstration of the presence of a stone in the ureter or the kidney is only the first step in the diagnosis. It is important that the diagnosis should be made complete. That means, first, the location of the stone. Is the stone in the kidney, in the pelvis, in the calices or in the ureter? Is there more than one stone? Is the stone in the upper or lower pole? If we can locate the stone definitely in this way the operative procedure is simplified and the trauma resulting from operative interference is reduced to a minimum. Instead of doing as the general surgeon has been doing in the past, exploring the kidney by making a wide section, if we know where the stone is situated we can make a small incision through the capsule over the stone and extract it through the small incision. This means much less trauma and a much simpler operation.

It has not been my experience to meet with as large as 12 per cent. of cases in which no blood or pus was found on repeated examination of a centrifuged specimen of urine. I was taught to believe that in the majority if not all cases of stone in the kidney or ureter if repeated examination of a centrifuged specimen was made blood would be found, and that has been my experience. I recall only one case, that of a stone in the upper calyx of the kidney, in which repeated examinations failed to show the presence of a few red blood cells. There is no reason to doubt his statistics, but I simply mention my personal experience.

Dr. G. G. Smith, Boston: In regard to Dr. Fowler's point about the presence of blood in the urine, I have lately noticed that in the routine examination of urine specimens from patients in the women's genito-urinary outpatient clinic at the Massachusetts General Hospital we have had an almost constant report of a few red blood cells, and that has happened so often that it has made me feel that in a thoroughly centrifuged specimen examined by a conscientious, thorough house officer a few red blood cells will almost always be found. I should like to hear some opinions on that. Some of these patients whose urine showed the red blood cells certainly had nothing wrong with the genito-urinary tract that we could discover in any other way, and there were too many of those cases showing red blood cells and nothing else for one to say there was a stone which could not be detected.

I have injected papaverin into the ureter once in each of four cases of ureteral calculi. In two cases the calculi were passed two weeks after the injection. The other two patients, the last time I saw them, had not passed their stones.

Dr. A. M. Wose, Syracuse, N. Y.: Recently six exposures of a calculus in the bladder were made, with negative findings. Examination with the cystoscope readily showed the calculus. This caused a little controversy with the roentgenologist, and in order to appease him I suggested after the extraction of the stone that I would be glad to make a little investigation with this calculus on a plate with the electrode at a distance of 18 inches. He did that, with negative findings. After that I suggested that he take a picture of his hand with the calculus on the hand, with the electrode 18 inches above, which he did, and there was no shadow of the calculus. Then I said the investigation ought to be chemical. It proved to be a pure uric acid stone.

Dr. V. D. Lespinasse, Chicago: In this connection I should like to report some work that has a bearing along this line. I started out to determine the changes that occur in the kidney following obstruction from a stone. I found that complete obstruction caused very rapid and severe changes. When the obstruction was partial the changes came on slowly and involved the ureter primarily. From that it was changed over to a clinical problem. By introducing a little stick of wood it was found that we could obtain a dilatation of the ureter, beginning at the lower end, and as time went on, going up to the kidney and ultimately involving the kidney; but it takes from ten to twenty days before any change occurs in the pelvis of the kidney. In that time there will be a dilatation of the ureter to about two to three times its normal diameter. Then after this work was done on the animals it was changed over and this little plug was adapted so that it could be introduced through the cystoscope and applied at the clinic. The plug was made from a small piece of laminaria with an opening through it. Inserted through the cystoscope and left in place, the plug swells. The opening in the plug also swells, so that if it is a No. 6 when it goes in, in an hour or two it swells to a No. 15, varying somewhat. The urine trickles through the hole and the ureter begins to dilate above the plug. The procedure is painless. Our clinical experience with it so far has been limited to one case in which there was a stone about a third of the way down the ureter and two stones in the kidney. We put the plug in place and left it there for a day, and the day following the man passed his stone. Then we sent him out to ride the roads in a well known automobile which the doctors commonly use and he shook the two stones into his ureter. He came back and we put the plug in his ureter again and he passed the two stones.

Dr. B. S. Barringer, New York: I should like to report just one unusual pyelogram result which misled us a great deal. The patient came to the Bellevue Hospital with symptoms of stone. A roentgenogram was made and a nest of three or four stones was found just above the crest of the ilium. We cystoscoped him and found an inflamed bladder and two ureters, and we injected thorium into the suspected kidney pelvis, with the result that we had a beautifully dilated pelvis up under the ribs. The thorium was plainly outlined, and the nest of stones down about 3 inches from this dilated kidney pelvis with no connection between the two. We thought he had double ureters and a double renal pelvis and that we had missed one of the ureters on cystoscopy. At the operation we looked for two ureters but did not find them. We found a large, dilated pelvis with a stone at the lower end. The thorium probably had not had time enough to diffuse through the entire pelvis.

Dr. J. E. Burns, Baltimore: About 30 per cent. of the calculi are missed in the plain roentgenogram. I have already called attention to the fact in several publications that the ureteral calculi missed in the plain roentgenograms are brought out by the thorium solution, either by the adhesive qualities of the solution or by its comparative density, or by the fact that the thorium solution is absorbed by the calculi. We have used this solution since its introduction in the Brady Clinic about two years ago in, I suppose, 400 cases. We have seen no ill results in any case. None of the cases have shown any necrosis or any destruction of renal parenchyma due to retention, which latter occurs very rarely, if at all.

It is essential that the solution be allowed to flow in while the roentgenogram is being made, so that the pelvis and ureter may be fully dilated. On repetition of the roentgenogram in such cases it might be well, in order to insure complete distention of the pelvis, to lower the head of the table and allow the solution to flow in by gravity. If the first attempt is not good, and if the ureterogram is not clear in the lower portion, the position, of course, should be reversed, and it will be found in practically every instance that the ureteropyelogram will be satisfactory.

Another important thing in the diagnosis of ureteral calculus is to employ the wax-tipped catheter. This, together with the pyelogram and the plain roentgenogram, is employed as a routine measure in the Brady Clinic.

Dr. A. J. Crowell, Charlotte, N. C.: I do not believe the presence of blood in a centrifugalized specimen of urine obtained by ureteral catheter means as much as some would seem to think. It is difficult, yes, almost impossible, I believe, to get urine with the ureteral catheter without getting some blood in a centrifugalized specimen of urine thus obtained. The presence of pus, of course, is a different thing. Personally I do not lay much stress on the presence of blood, but the presence of pus is very significant.

Just a little off the subject, and yet brought out by Dr. Bugbee in his paper, is the removal of stone from the ureter by the use of the ureteral catheter. About three years ago while endeavoring to remove a recently impacted stone from the ureter it occurred to me that it would be common sense to inject cocain or novocain into the ureter to deaden the sensation and thus allow the ureter to relax and assist the stone to pass out. This procedure was carried out and the next day the stone was found in the patient's bladder. Of course, this stone may have passed if nothing had been done, but it encouraged trying the plan in other cases. Since that time I have had twenty-three or twenty-four cases and have had to operate on only two patients for the removal of ureteral stone. I am convinced now that if I had persisted then (that was in the beginning of this work) as I do now I would have removed those two. It may take a number of treatments to remove stones in this way, but I believe that every recently impacted ureteral stone can be removed in this way if we get at it in time. I removed three from one ureter but it required six or eight treatments. If we will only persist in our efforts with the cystoscope and some form of local anesthesia, I believe we will seldom fail to remove these stones.

Dr. C. M. Harpster, Toledo, Ohio: I wish to endorse the position taken by Dr. Smith and Dr. Fowler. I believe if we make careful investigations of the urine we will, with the possible exception of a few cases, find microscopic blood. I think this is our most important diagnostic point clinically. The possible exception is in those cases in which there has been an occlusion of the ureter from impaction of the stone in the ureter or in the pelvis of the kidney; and in those cases in which there has been complete exclusion of the ureter, of course, we would not find microscopic blood; but in my experience I have, in a large number of cases, found microscopic blood after painstaking investigation.

Another point is in regard to reflex anuria which follows cases in which there is a single impacted stone *on one side*. It has been my experience in those cases in which there is anuria lasting three, five, and, in one case, ten days, that we will, on careful and repeated roentgen-ray examinations, find an impacted stone on the other side. In every case in which there have been bilateral calculi reflex anuria has not been found present. In those cases, I believe, we should make repeated searches to locate the stone *on the other side*. One of my old preceptors, Professor Israel, laid particular stress on this point, and in two cases I believe we were able to save the patients' lives. Where there *is* complete anuria differentiated from nephritis, in nephritis we will at least have a teaspoonful of urine excreted; that is, we will not have in any *nephritic* condition a complete and absolute anuria; and so by remembering this point I was able, in two cases of ureteral calculus in which experts had made a diagnosis of nephritis with complete suppression of urine, to find bilateral ureteral calculi.

Dr. Edward L. Young, Jr., Boston: Dr. Bugbee's trick of coiling a ureter catheter around a stone is a very pretty trick and a great help, provided it comes out all right. One case in connection with it might perhaps serve as a warning in the use of the procedure — a case in which a ureteral stone was hooked in that fashion, but then the fisherman was not able to bring in the fish, and for over an hour tried to get the catheter out. So I think there is a warning in regard to the use of the ureter in that condition, on account of the possibility of breaking off the catheter and also of getting the catheter up and having it caught there.

I wanted to emphasize what has been already emphasized, the indefiniteness of symptoms in the majority of cases of renal stone. Also, typical symptoms do appear, including blood and pus, without any calculus being present, and especially the symptom of pain. I think all statistics of pain in connection with calculus show that it is almost always indefinite and often misleading.

I have not looked up the cases at the Massachusetts General Hospital in regard to crossed symptoms, but I can *only* remember having seen two cases within a comparatively recent time, and I should like to register my opinion that a damaged kidney on one side without any symptoms, and a normal kidney on the other which seems to have the symptoms, is a comparatively rare condition. I do not mean that symptoms may not be mainly on the undamaged or slightly damaged side, but I think a normal kidney on one side showing symptoms and a damaged kidney on the other not showing any symptoms is, at least in my experience, rare.

Then the question of the removal of ureteral stones without operative procedure which has been *spoken of* so enthusiastically by every *one* today—I do not know whether we in Boston are slower than the rest of you in making a diagnosis, or less skilful in the use of the operating cystoscope, but we see large ureteral stones *that* I am *convinced* it would be impossible to remove by any method short of the open operation. Likewise, we fail to get stones of moderate size out in a percentage of cases larger than that spoken of today.

SPINAL PUNCTURE IN DIABETES INSIPIDUS

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Since the discovery by Magnus and Schaefer[1] in 1901 of the diuretic action of extracts of the posterior lobe of the hypophysis, attention has been directed to that organ as an important factor in the causation of diabetes insipidus. Frank,[2] in an important article published in 1912, reviewed the literature then existing on the subject and made a strong plea for a consideration of the relationship between the hypophysis and diabetes insipidus. Numerous writers already had emphasized the fact that lesions of the brain which involved the vicinity of the hypophysis were often accompanied by polyuria without sugar. Oppenheim,[3] in thirty-six cases of basal syphilitic meningitis, observed polyuria in twelve. Two of these showed at necropsy a gumma of the optic chiasm and hypophysis. Kruse,[3] in a study of thirty cases of bitemporal hemianopsia, observed diabetes insipidus in seven; and Spanbock and Steinhaus[3] mention its occurrence in eleven of fifty cases of bitemporal hemianopsia. Polyuria associated with metastatic carcinoma involving the hypophysis or its region, secondary to carcinoma of the breast, is a fairly frequent occurrence. Cases have been reported by Simmonds,[4] Rosenhaupt,[5] Miller[6] and von Gierke.[7] Recently Sekiguchi[8] has described two additional cases. Cushing's experiments in 1913 led him to conclude that there was a strong "argument in favor of the view that an actual disturbance of the pituitary body itself, rather than the stimulation of some predicated diuretic center in the remote third ventricle surmounting the growth, was the inciting cause of a condition worthy of the designation of diabetes insipidus." Lewis and Matthews[10] in 1913 concluded from their experiments that diabetes

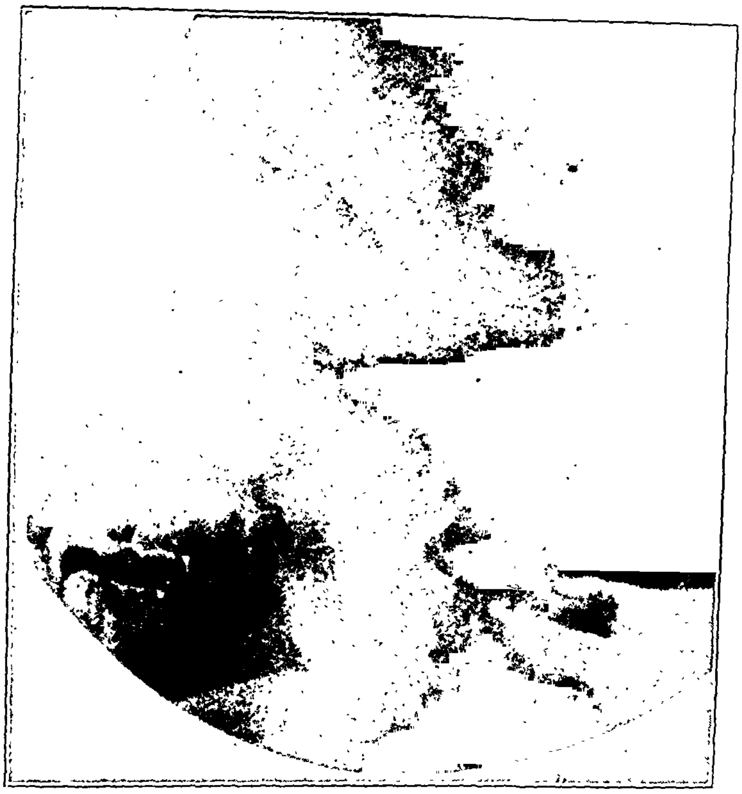

Fig. 1.—Clinoid processes nearly fused, with apparent narrowing of sella turcica in a case of diabetes insipidus.

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[1] Magnus and Schaefer: The Actions of Pituitary Extract Upon the Kidney, Jour. Physiol., 1901, 1902.

[2] Frank, E.: Ueber Beziehungen der Hypophyse zum Diabetes insipidus, Berl. klin. Wchnschr., 1912, **49**, 393.

[3] Quoted by Frank (Note 2).

[4] Simmonds: Hypophysis und Diabetes insipidus, München. med. Wchnschr., 1913, **40**, 127.

[5] Rosenhaupt, H.: Berl. klin. Wchnschr., 1903, p. 893.

[6] Miller, J. L.: The Relation of the Hypophysis to Certain Clinical Manifestations and the Therapeutic Applications of Its Extract, Am. Jour. Med. Sc., 1916, **152**, 549.

[7] Von Gierke, E.: Hypophysis und Epiphysis bei Diabetes insipidus, Verhandl. d. deutsch. path. Gesellsch., 1914, **17**, 200.

[8] Sekiguchi: Hypophysial Disorder in Mammary Cancer and Its Relation to Diabetes Insipidus, Ann. Surg., 1916, **63**, 297.

[9] Cushing, Harvey: Concerning Diabetes Insipidus and the Polyurias of Hypophyseal Origin, Boston Med. and Surg. Jour., 1913, **168**, 901.

[10] Lewis, D., and Matthews, S. A.: The Pars Intermedia: Its Relation to Diabetes Insipidus, Tr. Path. Soc. Chicago, 1913, **9**, 16.

insipidus is probably dependent on the hypersecretion of the diuretic substance of the posterior lobe which is secreted by the epithelial covering known as the pars intermedia. Falta,[11] however, warns against a too hasty conclusion that lesions of the base of the brain which induce polyuria do so always by mediation of the hypophysis, although he discusses at length the possibility that such may be the case.

Several cases of diabetes insipidus of which the onset occurred after a trauma to the head are in the literature. Doubtless, at least a temporary polyuria will be found to be very common after head injuries, especially basal skull fractures, if attention is more frequently directed to the output of urine. Mohr[12] has recorded a case which developed about three weeks after a basal skull fracture, and Kleeblatt[13] has described one occurring on the third day after a similar lesion. French and Ticehurst[14] also observed a case of diabetes insipidus which had its origin in a fracture (through the sphenoid). Recently I have seen a case of fracture of the skull in which the roentgenogram clearly revealed the line of fracture extending into the sella turcica (Fig. 3). During the first twenty-four hours the amount of urine passed was 40 ounces (1,280 c.c.). During the second day the total amount increased to 130 ounces (4,160 c.c.), and on the third day 110 ounces (3,520 c.c.) were passed. Two days later the total output had returned to normal. At no time did the urine show any abnormal constituent. I[15] have recently reported another case in which a total output of 170 ounces (5,500 c.c.) was passed during a twenty-four hour period, following a gunshot wound of the head which severed the optic nerves, probably at the chiasm, with probable resultant injury to the hypophysis. This urine was of a specific gravity of only 1.002, and contained no sugar.

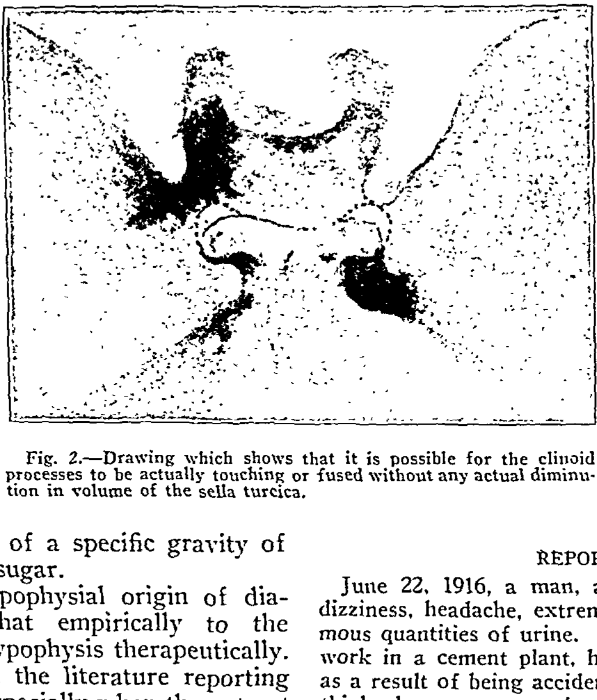

Fig. 2.—Drawing which shows that it is possible for the clinoid processes to be actually touching or fused without any actual diminution in volume of the sella turcica.

The suggestion of the hypophysial origin of diabetes insipidus led somewhat empirically to the employment of extracts of hypophysis therapeutically. Numerous cases are now in the literature reporting markedly beneficial results, especially when the extract has been given intravenously and also even when given hypodermically. Recently Hoppe-Seyler[16] has reported a case of a man, aged 25, with diabetes insipidus who had no evidence of syphilis and no roentgen evidence of any lesion of the hypophysis. Hypodermic injections of hypophysis extract, however, resulted in the restoration of the amount and concentration of the urine to normal. When given by the mouth, no appreciable effect was noticeable. The administration of atropin diminished the volume of urine, but also kept back the solids, whereas with hypophysis extract the solids appeared in normal concentration despite the marked reduction in volume. He considers that the therapeutic results are as striking as those obtained in the treatment of myxedema with thyroid extract. Konschegg and Schuster[17] have also reported an instructive case in which the administration of hypophysis extract to a patient with diabetes insipidus resulted in a return of the urinary conditions and of the water intake to normal. They report that the findings here are in contrast to those obtained when the extract is administered to normal individuals. With the latter, following the injection the decrease in the excretion of water is accompanied by a decrease in the concentration of the solids.

The case reported below is of great interest, not only because it illustrates a type of diabetes insipidus probably induced by disturbance of the hypophysis through an increased pressure of cerebrospinal fluid, but also because *the relief of pressure by spinal puncture was immediately followed by a cessation of the polyuria and other symptoms.* So far as I have been able to learn from the literature, there has been only one other case of diabetes insipidus in which spinal puncture was made. That was a case reported by J. B. Herrick[18] in 1912. In that case the lumbar puncture was made simply for the purpose of obtaining some spinal fluid and with no idea of improving the symptoms; but following the puncture, the amount of urine dropped from 10 liters to 1 liter, and the specific gravity correspondingly changed from 1.001 to 1.031.

REPORT OF CASE

June 22, 1916, a man, aged 24, consulted me because of dizziness, headache, extreme thirst and the passing of enormous quantities of urine. He stated that, March 13, while at work in a cement plant, he sustained an injury to his chest as a result of being accidentally struck with an iron bar. He thinks he was unconscious for a few minutes, although he knows of no injury to the head. He stopped work and went home, but was not compelled to go to bed. A physician told him that he had a fracture of the sternum and of two ribs on the left side. He reported for work on the next evening, but was sent home again and remained away from his work until April 4. Within a day or two after the injury he noticed that he was markedly constipated so that he could hardly get a bowel movement even with cathartics. He had no headache nor dizziness until after he resumed work. Then during the first week of April, he began to notice severe headache and dizziness every day. These symptoms became progressively worse. The headache was chiefly frontal and in the temporal regions, and also sometimes "behind the eyes." It was described as resembling sharp, cutting pains, sometimes going up through the ears. Headache was always worse after excitement or hard muscular work. It was not always present all day. Nausea and vomiting were rarely present, but when nausea did occur, it was always worse at breakfast time. Reading always aggravated the dizziness. No disturbance in power of vision had been noted. The only relief possible from the headache and dizziness was in lying down.

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[11] Falta: The Ductless Glandular Diseases, Philadelphia, P. Blakiston's Son & Co., Ed. 2, p. 322.

[12] Mohr: Diabetes Insipidus nach Schädelgrundbrüche, Monatsschr. f. Unfallheilk., 1912, **19**, 362.

[13] Kleeblatt: Diabetes insipidus nach Schädelverletzungen, Med. Klin., 1915, **11**, 915.

[14] French, H., and Ticehurst, C. B.: Relation of Traumatic Diabetes Insipidus to Glycosuria, Tr. Clin. Soc., London, 1906, **39**, 117.

[15] Graham, E. A.: Diabetes Insipidus as a Sequel to a Gunshot Wound of the Head, Ann. Surg., 1917.

[16] Hoppe-Seyler: Beziehung des Diabetes insipidus zum Hypophyse und seine Behandlung mit Hypophysenextrakt, München. med. Wchnschr., 1915, **62**.

[17] Konschegg and Schuster: Deutsch. med. Wchnschr., 1915, **61**, 1091.

[18] Herrick, J. B.: Report of a Case of Diabetes Insipidus with Marked Reduction in the Amount of Urine Following Lumbar Puncture, Arch. Int. Med., July, 1912, p. 1.

Beginning with the latter part of April, marked polyuria set in. This became progressively worse up to the time I first saw him. During this time he had to get up at night to urinate, frequently as often as six times. During the day he passed urine as often as every hour or half hour. At each act of urination he passed enormous quantities of urine, without pain or burning. He never measured accurately the amount of urine passed in twenty-four hours, but he estimated it as high as 10 or 12 quarts daily. During a period of a little more than an hour while I was examining him, he passed more than a quart. His thirst was insatiable, but his appetite was poor. It was not accompanied by a craving for any special kind of food, such as carbohydrates. He thinks he lost about 25 pounds after his injury.

His previous history was negative except for measles in childhood. He denied any venereal infection. He is the father of a healthy child 1 month old. His family history likewise was of no special importance. His father and mother were both alive and well, the father at 70 years, and the mother at 66. He is one of nine brothers and sisters, all of whom are well.

The examination revealed a fairly well nourished young man who seemed bright and intelligent. Physical examination showed no abnormality of any kind. His vision and eyegrounds were examined by Dr. F. G. Murphy, who reported no abnormality. The blood was practically normal, and the systolic pressure was 120 mm. The urine was clear, slightly acid and of a light straw color. Its specific gravity was 1.001. It contained no albumin or sugar, and practically no sediment except an occasional urate crystal and an epithelial cell. A roentgen examination of the skull revealed a very marked narrowing of the upper margin of the sella turcica (Fig. 1). The distance between the anterior and posterior clinoid processes was only about 2 mm., whereas the normal should be from 10 to 14 mm. He was advised to enter the hospital for several days for examination, but he declined to do so. I then advised that he come to the hospital on the following day for a lumbar puncture and to remain for a few days later. He consented to do so; and on the following day, June 24, lumbar puncture was performed with novocain anesthesia. Immediately after the insertion of the needle into the spinal canal, fluid shot out in a steady stream for a distance of from 8 to 12 inches. Because of the sudden surprising gush, some of the fluid was lost; but a little more than half an ounce was saved. The fluid was still running in a steady stream; but because of fear of too suddenly lowering the intraspinal pressure, the needle was withdrawn. He immediately stated that his headache and dizziness were entirely gone, despite the fact that they had been pronounced before the puncture was made. He was then put to bed; but about four hours later without our knowledge or consent he got up, dressed himself, and walked home, a distance of about a mile from the hospital. On examination the fluid was found to be clear and of a pale straw color. After it was centrifuged, the sediment was found to contain only two cells (mononuclear in type) and no bacteria. It was intended to save some of the fluid for a Wassermann test, but through a mistake in directions it was thrown away. A Wassermann test of the blood, however, was negative.

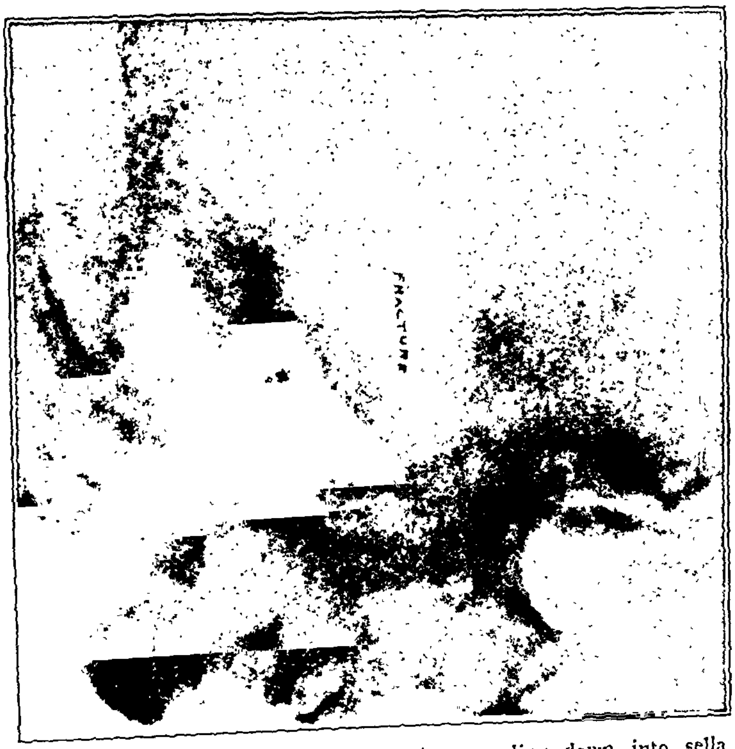

Fig. 3.—Fracture of skull apparently extending down into sella turcica, and accompanied by marked polyuria.

Because of the brief stay in the hospital it was impossible to make any quantitative studies of the urine; but it is interesting that during the four hours in the hospital no urine passed, the longest interval without urination since the onset of the symptoms. The subsequent history is of great interest. For the next four days after leaving the hospital he suffered with intense headache and dizziness to such an extent that he was bedridden, but the polyuria and thirst remained absent. He passed urine at this time only four or five times within the twenty-four hours. He then returned to the hospital and stayed for five days. During this time the headache and the dizziness gradually disappeared. The volume of urine passed during the twenty-four hours varied between 1 and 2 liters, and its specific gravity varied between 1.020 and 1.028. At no time did it show any abnormal constituent.

September 18, we saw the patient again. He stated then that he had been working since the middle of July. He thought he drank a normal quantity of water and passed a normal quantity of urine. Since the spinal puncture he had not had to urinate once during the night; and during the day he passed urine only three or four times. He had gained 5 pounds since leaving the hospital, but still felt dizzy at times. He stated that in the morning he felt perfectly well, but about the middle of the afternoon began to develop a little headache and dizziness, which continued until his evening meal. Then he would feel well again. He attributed the onset of headache and dizziness chiefly to exhaustion from work.

COMMENT

The apparent chain of events in this case is probably as follows: In some unknown way the accident led to an increase in the amount of intraspinal fluid. This in turn led to symptoms suggestive of intracranial pressure, such as headache and dizziness; and the hypophysis was so affected that polyuria without sugar was induced. The immediate improvement of all the symptoms after the lumbar puncture is striking. The question of how the spinal fluid became so much increased cannot be satisfactorily answered. The roentgen-ray findings are interesting, but probably should not be taken as conclusive evidence that the sella turcica was narrowed to the extent of producing pressure on the hypophysis. Although the normal distance between the anterior and posterior clinoid processes varies between 10 and 14 mm., it is possible for the processes to be actually fused without any appreciable change in the volume of the sella and without any symptoms of pressure, as repeatedly verified at necropsy. Figure 2 shows how, owing to the roughly hexagonal form of the sella turcica in the horizontal plane, the clinoid processes may be actually fused without producing any diminution in volume of the sella. The case here reported tends to support the view of the relationship existing between disturbances of the hypophysis and diabetes insipidus.

An immediate striking relief of symptoms has been obtained by the performance of spinal puncture.

ANAL AND RECTAL FISTULA *

J. RAWSON PENNINGTON, M.D.
CHICAGO

In a preliminary report[1] before the American Proctologic Society, at the Detroit meeting, June, 1916, on "Anatomic and Bacteriologic Findings of the Ano-Rectal Region," I called attention to the sinuses and diverticula in this region. It was announced that cocci, and other forms of bacteria, had been found in their walls and contents, and the possible relation to focal infections was pointed out. Since I desire to emphasize the relations between these sinuses and diverticula, and anal and rectual fistula, the present communication is necessarily elementary and textbook-like in character.

A fistula is an infected artificial channel between the skin and the serous or mucous membrane of a normal cavity, or between two normal cavities. It has two or more openings. A sinus, often confounded with a fistula, is an infected artificial channel connecting the skin or mucous membrane with an abnormal cavity. It has, as a rule, one opening only.

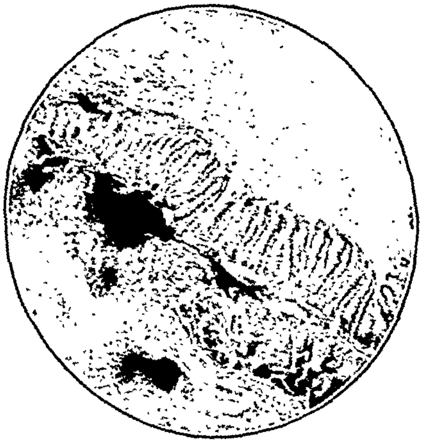

Fig. 1.—Photomicrograph of an infected rectal sinus. The infection has broken through the sinus wall and extended into the surrounding tissues. Compare Fig. 2.

ETIOLOGIC FACTORS

The principal causes of fistula are predisposing (embryologic, traumatic, etc.), and exciting (bacteriologic) conditions.

Embryologic Causes.—The sinuses and diverticula to which I have just referred come under this classification. These sinuses I first noticed many years ago when investigating the structure of the rectal valves, and I referred to them in a paper in THE JOURNAL as "epithelial glands."[2] Later, I frequently noticed the apertures of the sinuses and diverticula during the course of various operations on the lower bowel, and pointed them out to my classes from time to time.

Not long ago, in a patient with hemorrhoids, one aperture was so prominent that a probe was inserted into the lumen for considerable distance. This aroused renewed interest in the subject. Specimens were collected, given to the Medical Research Laboratory of Chicago, and investigations commenced from embryologic, bacteriologic and histologic standpoints.

When the literature was looked up it was a great surprise to find that these sinuses[3] and diverticula had been described by Hermann and Desfosses nearly forty years ago. Some years later they are alluded to in Quénu and Hartmann's book on "Surgery of the Rectum." Since then they have been ignored by all textbooks on diseases of the rectum and those on medicine and surgery. The only reference I have been able to discover of late years is in an article by Johnson.[4]

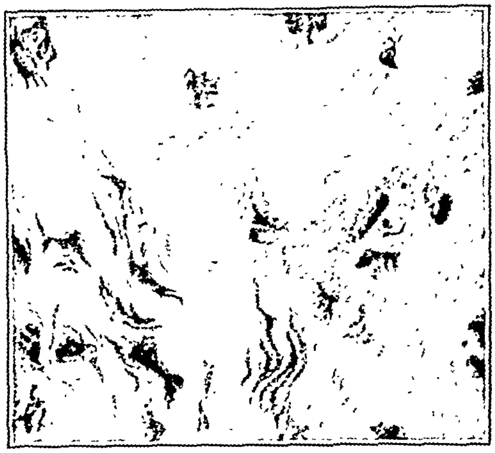

Fig. 2.—Microscopic drawing of a field in Figure 1. It contains colon bacilli, staphylococci and other micro-organisms.

It is not clear why they have been ignored, unless it is because they have had no pathologic possibilities attributed to them. Yet, as will be seen by Figures 1 and 2, and by clinical experience, they are an exceedingly important factor in disease processes in the rectum itself, primarily, and in constitutional conditions, secondarily.

That an important anatomic fact could, in this scientific age, be disregarded or lost sight of for many years, after being placed on record, and then, without knowledge of its former discovery, be rediscovered and found to be of great importance as a disease-producing factor, is almost unbelievable. However, this anatomic finding, when resurrected, proves to be a vital etiologic factor in the causation of fistula and

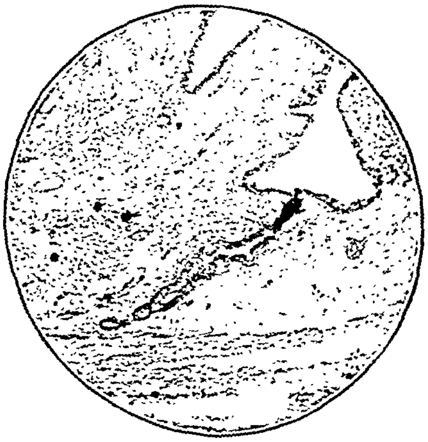

Fig. 3.—Photomicrograph of a normal rectal sinus in a child 1 day old. The wide mouth of the sinus opening into the rectum should be noted. This sinus extends through the mucosa and submucosa to the circular muscle fibers. In some instances they terminate in mucous glands.

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Pennington, J. Rawson: Tr. Am. Proctol. Soc., 1916, p. 38.

[2] Pennington, J. Rawson: New Points in the Anatomy and Histology of the Rectum and Colon, THE JOURNAL A. M. A., Dec. 15, 1900, p. 1520.

[3] Hermann and Defosses: Compt. rend. Acad. d. sc., Paris, 1880, 40, 1301.

[4] Johnson: Am. Jour. Anat., March, 1914.

other diseases of the rectum, with their metastatic sequelae.

Traumatic Causes.—In this group is included any mechanical injury leading to the formation of a fistula, or that perforates the rectum, connecting it at once with the skin by means of an artificial channel.

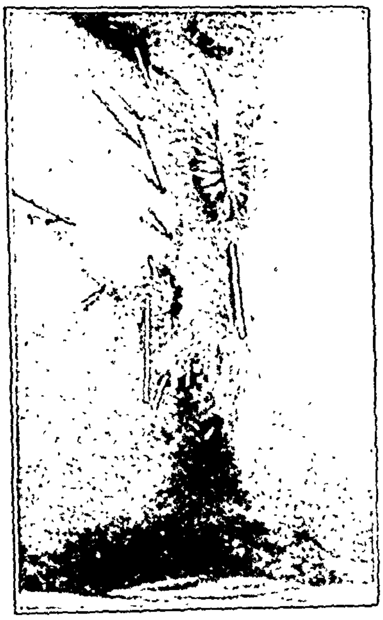

Fig. 4.—This sketch is from Ball's book on "Diseases of the Rectum." It shows one internal and numerous external fistulous openings, and doubtless is intended to suggest the formidableness of a fistula. Yet, the gravity of a case, all things being equal, depends much more on the position of the internal than the number of external openings.

Other Pathologic Conditions.—In this list of conditions I refer to proctitis, cryptitis, constipation, hemorrhoids, fissure, stricture, ulceration and other rectal conditions, which favor the invasion of the sinuses and diverticula and perirectal tissues with pyogenic organisms (Figs. 1 and 2). Such conditions constitute a prefistula stage or period, and aid and abet in the development of the infection stage of fistula.

Exciting Cause.—It has been definitely proved that bacteria are the exciting cause of fistula. The rectal sinuses and diverticula serve as catch-basins or traps for the bacteria (Fig. 3). Here they give off toxins, which aid in producing irritation, to be followed by congestion, inflammation and their escape into the surrounding structures, where they are either encapsulated or lead to an abscess.

Should they produce an abscess, it will continue to enlarge, and the pus to burrow in the direction of least resistance until it finally makes its way through the skin or mucous membrane, forming an internal or external rectal sinus; or, by way of the skin and mucous membrane simultaneously, which forms an infected artificial communication between the skin and a normal cavity, as the rectum or other viscus. Such a channel is known as a fistula.

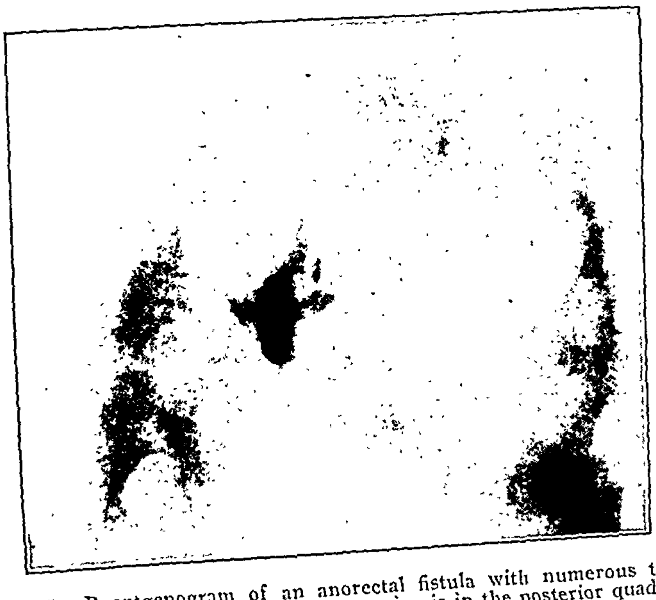

Fig. 5.—Roentgenogram of an anorectal fistula with numerous tracts and external openings. The internal opening is in the posterior quadrant. The patient had been operated on three times by different surgeons. Necrosis of the sacrum, which had been overlooked, was the primary cause.

STAGES IN THE DEVELOPMENT

There are four stages of development, namely, (1) the prefistula stage; (2) the stage of infection; (3) the abscess stage, and (4) the fistula stage.

1. The prefistula stage antedates the stage of the infection, which leads directly to the formation of a sinus or a fistula. A careful examination will show that a very large percentage of fistulas, if not all, are secondary diseases, and that they are preceded in their development by other rectal diseases. From the standpoint of treatment, this is the most important period.

2. The infection stage begins with the invasion of the tissues by pyogenic organisms (Figs. 1 and 2), and continues until the formation of an abscess is inevitable. Authorities tell us that a fistula is due to an abscess; they also state that an abscess is caused by bacteria. Then, is not infection the cause of the fistula, and the abscess one of the stages in its development?

3. The abscess stage commences when suppuration is inevitable, and ends when the pus begins to discharge. It matters not whether this discharge is brought about by ruputre of the tissues or otherwise. The location of the abscess depends on the position of the atrium of invasion; to what point the sinuses or diverticula and the lymphatics lead; the relation of the fascial planes, and the nature of the infection.

Fig. 6.—Roentgenogram of an abscess occurring in the superior pelvirectal space, taken on the third day after it had been opened. It was cured with injections of bismuth paste. *No* fistula followed.

4. The fistula stage begins with the discharge of pus, and ends when the fistula is cured.

CLASSIFICATION

Custom and usage have divided fistulas[5] into two principal varieties, namely, complete and incomplete. The incomplete variety is still further subdivided into blind internal and blind external fistulas, neither of which, however, according to the foregoing definition, is a fistula. Each in reality is a sinus, one an internal and the other an external rectal sinus. Complete or true fistula should be classified, according to the anatomic location of the internal opening, into anal fistula, or fistula-in-ano (the internal opening being located in the anus); ano rectal fistula (with the internal opening located in the junction between the rectum and anus); and rectal fistula (when the internal opening is in the rectum proper). Complex, watering-pot, multiple, horseshoe, and other so-called varieties of fistula are simply expressions of complexity, multiplicity, position or shape of one or the other of the foregoing divisions, or a combination of them.

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[5] Pennington, J. Rawson: Rectal Fistula, New York Med. Jour., Oct. 16, 1915.

GRAVITY

The gravity of the case, all things being equal, is governed by the position of the internal opening. A rectal fistula with a single tract, and with one opening in the rectum is much more formidable than an anal fistula of the horseshoe or some other variety, with two or more openings in the anus and twenty-five, forty, fifty, or more openings on the buttocks (Fig. 4). The number of external openings has but little to do with the relative gravity of the case.

DIAGNOSIS

The diagnosis of an external rectal sinus—"blind external fistula"—is usually made when an internal opening cannot be demonstrated either by a probe or by injecting water, a solution of methylene blue, peroxid of hydrogen, or other substances, through it and into the bowel. These tests, however, are not infallible. Angulation of the tract may prevent the probe from entering the bowel, while necrotic tissues, or a kind of "trap-door" arrangement along the fistulous channel, may prevent the injection from passing through the channel. The roentgen ray in combination with subnitrate of bismuth ointment, is a valuable aid in the diagnosis of fistula (Fig. 5).

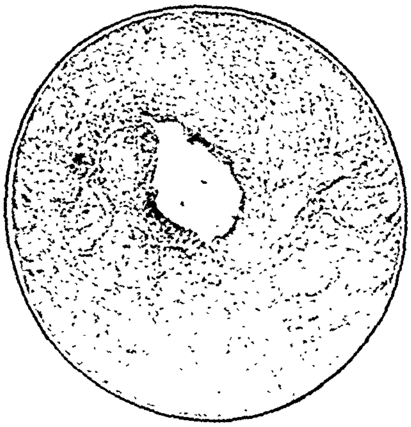

Fig. 7.—Photomicrograph of a cross section of a fistula and its pyogenic membrane. It reveals numerous sinuses extending off from the main tract, and shows why incising the fistulous tract and making Salmon's back-cut so often fail to cure.

TREATMENT

This is preventive (prophylactic and abortive), curative (injections, incision, ligature and excision with immediate suture) and palliative.

Prophylactic.—A careful examination usually elicits the fact that practically every person who has fistula has, or has had, some other form of rectal disease. These conditions favor the invasion of the perirectal tissues by micro-organisms, which may be followed by an abscess and a fistula. If persons were instructed how to keep the rectum clean and in a sanitary and healthy state, and did so, fistula would become much less frequent. Since the number of cases of fistula may be greatly reduced by instruction and preventive medicine, is it not our duty as proctologists to launch a campaign for the prevention of this stubborn affection?

Abortive Treatment.—The time to abort a fistula is during the abscess stage. If the abscess is opened early and the abscess wall not interfered with in any way by means of instruments or drugs, but the cavity freely drained and gently filled with subnitrate of bismuth ointment, and this treatment repeated when indicated, the fistula will, as a rule, be aborted (Fig. 6). Do not forget that too much interference with an abscess has caused many a fistula.

Injections.—I have had most excellent results in the treatment of some cases of fistula by first cleansing the tracts with neutral solution of chlorinated soda, and then injecting them with subnitrate of bismuth ointment.

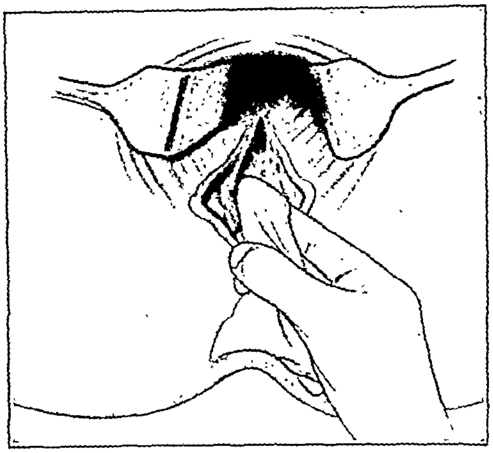

Fig. 8.—Schematic illustration of a fistula incised and the rectum held widely open with retractors. The necrotic tissue is being removed with a piece of gauze, and sinus openings may be seen in the pyogenic membrane.

Incision.—Passing a grooved director through and simply incising the fistulous tract or tracts and the tissues distal to it, and allowing the wound to heal by granulation has been and still is almost universally employed in the treatment of this disease. Tuttle,[6] however, says that "In 2,196 cases operated on in general hospitals by surgeons, less than 45 per cent. of them were even claimed to have been cured." As he failed to state the technic employed, is it not reasonable to suppose that at least 95 per cent. of them were operated on by the incision method either with or without Salmon's back-cut, and that crevices or sinuses similar to those shown in Figures 7, 8 and 9 were not discovered and removed, and that they continued to reinfect the operated field? We believe this to be the reason because: (1) it is the method employed by nearly all operators, and (2) simply slitting up a fistulous tract and not removing the "pyogenic membrane," when it can be done, is certainly not good

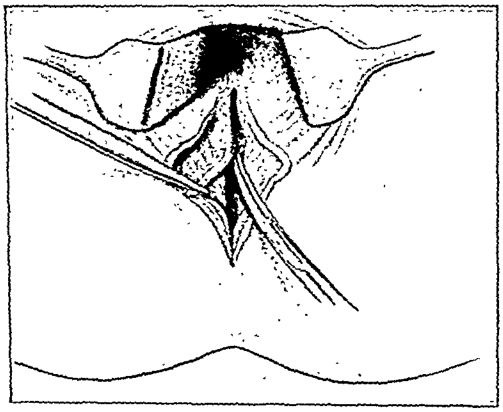

Fig. 9.—Schematic illustration of removal of the pyogenic membrane after the fistula has been incised.

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6. Tuttle: Diseases of the Rectum.

surgery. Moreover, such procedures necessarily prolong the time of recovery and increase the amount of scar tissue, which may lead to malignancy. Such a case recently came under my care.

Excision with Immediate Suture.—A blunt-pointed director is passed through the fistula and into the rectum. The end in the rectum may or may not be hooked out through the anus. Then, either the tissues resting on the instrument are cut through and the so-called "pyogenic membrane" dissected out (Fig. 9), or the mebrane is dissected out, leaving it threaded on the director. The probe should be used with the utmost gentleness, or a false passage may be made, defeating the purpose of the operation. After the incision of the intervening tissues and the removal of the "pyogenic membrane," care should be taken to locate and remove any offshoots or side channels, since all infected tissue must be removed and the wound disinfected before closing.

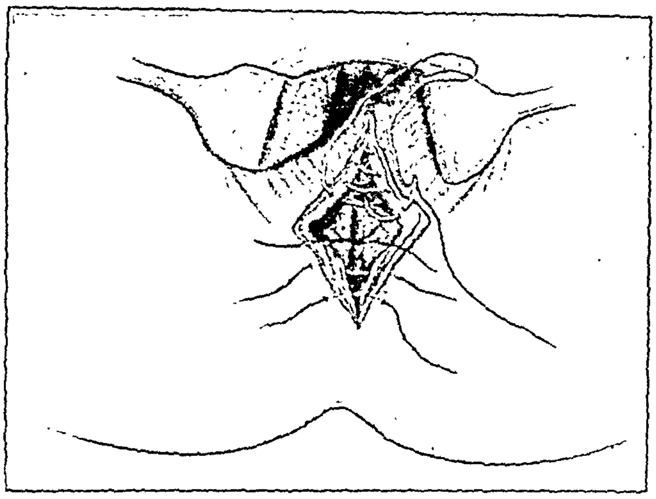

Fig. 10.—Schematic illustration showing the method of closing the mucous membrane, the sphincter and the deeper tissues, and the skin.

Closing the Wound.—Care should be taken that all bleeding is controlled before the wound is closed, otherwise a hematoma may form and prolong, if not defeat the benefits of the operation. Suturing the wound is sometimes very difficult to accomplish. First, I usually close the incision in the mucous membrane, from its termination within the rectum to the skin, with continuous catgut suture (Fig. 10), then the severed sphincter or sphincters and the deeper tissues with interrupted buried catgut sutures (Fig. 10). Finally, the skin and fascia are united with interrupted silkworm gut (Figs. 10 and 11). After the wound is closed, one should attempt no such stunts as pulling the mucous membrane down over the wound and stitching it to the skin, or covering the lines of suturing with collodion dressings, as advised in some textbooks. The wound should be dressed with iodoform or plain gauze and a T bandage applied. I usually direct that the bowels be moved at the end of the third or fourth day with an injection consisting of about 1½ pints of water, in which from 30 to 40 grains of inspissated ox-gall have been dissolved.

31 North State Street.

ABSTRACT OF DISCUSSION

Dr. William M. Beach, Pittsburgh: The history of fistula is one of infection. Very seldom does the proctologist see the acute stage of fistula; that period is usually managed rather indifferently by the general practitioner until the abscess breaks. It were more fortunate to the patient to subject him to surgical measures early in order to avoid the formation of fistula. Fistula has two or three origins: first, the tubercle bacillus, and second, the *Bacillus coli-communis*, mixed with pyogenic cocci. The persistence of a fistula depends on reinfection, and the pictures shown today explain how that is possible and may convert a simple tract into a complex one.

The extent of a fistula depends on three things: first, on the size of the original abscess; the ischiorectal fossa containing fat offers little resistance to the invading bacteria and the abscess is limited by its capacity. The pelvirectal space makes a large abscess possible; second, the extent of the fistula will depend on the degree of patency of the external or internal opening. A draining tract will not extend; third, it depends on the virulence of the infecting micro-organism. Fistulas are not by any means always due to the tubercle bacillus, as is popularly supposed, but all sorts of micro-organisms are found in these processes, and they are frequently very destructive of tissues.

The treatment involves the principle of drainage. The internal opening should be located, and is usually found between the ental and ectal sphincters; if the tract runs up the bowel, it is usually submucosal and can be incised with impunity and without fear of incontinence.

Dr. A. E. Chace, New York: I think Dr. Pennington has missed the real point in the relationship which lies between the intramuscular sinuses and ischiorectal abscesses, which I brought out in a paper before a New York medical society last winter. These intramuscular sinuses not only go down, as he has shown in the slides, just to the muscle, but actually into it, and in some instances almost pierce the muscle, thereby accounting for the path of infection from the rectal mucosa, through the muscle, into the ischiorectal fossa. I have no doubt that Dr. Pennington has seen the beautiful illustration of the sinuses extending into the muscle in Hermann and Defosse's original work. If he will go still further and look at the beautiful wax models by Dr. F. P. Johnson of intramuscular sinuses, he will see how well this point is illustrated. There is no question but that they are the cause, in many cases, of ischiorectal abscesses. We all have about our anal canals at least several of these long, blind sinuses which are potent of inflammatory reaction.

Dr. R. W. Jackson, Fall River, Mass.: There are two phases of fistula work of which I want to say a word. The first is on the diagnostic side. A large majority of the cases are unmistakably associated with the rectum in cause or sequence, but too many are not, or are not plainly so. There are many which originate in extra-intestinal foci, such as lesions of bone and joints, uterus and adnexa, or genito-urinary tract, but which often empty near the anus and lead to false diagnosis by the average attending practitioner. I would call attention to the value of colored solutions (methylene blue and the like) injected into the external openings, this to be followed immediately by proctoscopic or sigmoidoscopic examination to locate the point of emergence, if any, into the gut, that is, the site of an internal opening. And further, the patients should urinate immediately after such injection to show possible communication with the urinary tract; and here I use the word "immediately" advisedly, for it must be recollected that the methylene blue so injected may be absorbed and appear in the urine later by the

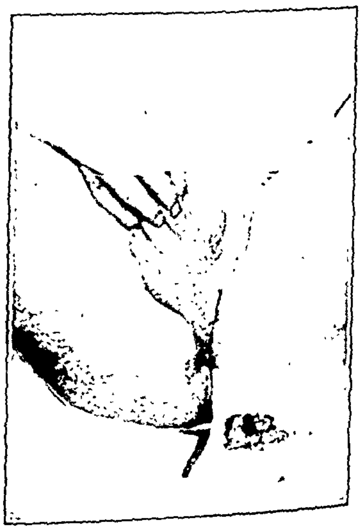

Fig. 11.—Photograph taken two weeks after the operation. It shows the operative field and the fistulous mass that was removed. One sinus extended to Poupart's ligament and another involved the scrotum, which was opened during the dissection, the testicle dropping out. The wound was closed after the method shown in Figure 10. The patient made a permanent recovery.

hematogenous route. The great value of bismuth paste injected, not for therapeutic but for diagnostic purposes, ought also to be enlarged on. The paste should be thin to reach easily the limits of all side tracts, and the main tract should contain simultaneously a probe passed to its limit. Then the picture shown by roentgenograms, provided they are taken in stereoscopic form, is often graphic indeed, a bismuth finger pointing directly at the primary focus of trouble, particularly if that be osseous. Flat, nonstereoscopic pictures have no such value. I have found these procedures invaluable in some work a description of which has already appeared in print.

The second phase is on the therapeutic side, and I would call attention to it by asking a question. Is there not a field in the surgical therapeusis of the highly septic processes about the anus and rectum for the use of the sodium hypochlorite solutions? The technic of their use must of necessity be imperfect as compared with the exact methods in use in military surgery, yet, though I am only just beginning to employ them, I believe they hold promise.

Dr. Fenton B. Turck, New York: As I understand it, this paper is presented to emphasize the idea of removing the lining wall of the fistula and the surrounding round cell infiltration by operative procedure. The fistulous tract is nothing but the result of the formation of an avenue of escape for the products of infection. The walls of the fistulous tract, and likewise the surrounding tissue, are infected. Dr. Pennington proposes to remove the products of infection from the entire infected area, bringing the fresh tissues together by suture, with the hope of obtaining primary union, as Dr. Smith proposed to do in the eighties. The objection claimed as the result of clinical experience is that many of the cases do not permanently heal because of retention of infected material. If a small drainage of silkworm gut is used, would there still be danger of reinfection, especially if the sodium hypochlorite infiltration method is used?

Dr. B. Gruskin, Chicago: I shall discuss this paper from the point of view of a laboratory man interested in infection and immunity. It occurs to me that Dr. Pennington has done valuable work by calling our attention to the infections of the lower bowel. For years we have been becoming more appreciative of the infections due to the tonsils, the teeth, etc. It has been proved that such conditions as arthritis, rheumatism and other disturbances are the result of infection from those regions; but never have we though of the fact that the lower bowel, being more exposed to micro-organisms than any other part of the body, if it should by some pathologic condition become irritated, would certainly offer the most favorable field for infection. Dr. Pennington's experiments were carried out in my laboratories, and I especially appreciate that it took an enormous amount of labor and study for Dr. Pennington to come to his conclusions, and I deem it my duty to call the attention of the profession to the importance of these researches, which will in the future throw more light on so many of the so-called idiopathic conditions.

Dr. Dwight H. Murray, Syracuse, N. Y.: I do not believe the rectum is any more liable to infection than any other part of the body because of the material that goes through it; that is, if normal; but, because of our careless habits we may through constipation, by using the rectum instead of the sigmoid as a reservoir for feces, become autointoxicated and lose our power of resistance against infection. With a normal condition of the colon and rectum we should not have infection.

Dr. Louis J. Hirschman, Detroit: In regard to the diagnosis of a fistulous tract, we have heard about the injection of colored solutions. Colored solutions run out of the tract. By reinjecting bismuth paste just before operating on a patient the contrast of the yellow bismuth against the red flesh is far more definite and much more satisfactory than a stain of methylene blue solution or black permanganate solution. Even while operating the watery solution runs out while the bismuth remains in situ and may point out something overlooked.

With regard to the remarks of Dr. Turck, most of us have always advocated the excision of the whole fistulous tract. Nine or ten years ago I called attention to microscopic submucous tracts and I advocated excision of the whole tract for that reason, and I have had no reason to change my procedure since. I believe I have had good results because I excised the whole tract.

Dr. Pennington spoke of the fistula being incised, curetting out the cavity well and packing. I have tried to curet the tract and realized the fallacy of this very soon. It cannot be done; it must be excised. Every [illegible], I am sure. I am disappointed to hea[illegible] is still sewing up fistulas. I thought we had all forgotten about that in infected tracts. I want to congratulate Dr. Pennington on the case he showed in which the patient got well without further trouble. I think it is impossible to sew up an infected tract without great danger.

Dr. J. Rawson Pennington, Chicago: I was glad to hear Dr. Chace say that he had done some original work on the rectal sinuses, and that he had read a paper on the subject before a medical society last winter. As he has not published his paper, he could not expect the profession to know about it.

I was surprised to hear Dr. Hirschman say that he thought we were through with sewing up fistulas, and that he would like to see a photograph taken six months from now of the patient whose picture was thrown on the screen. I might say that I saw the patient four or five years after the operation and that he was still well.

In a large percentage of the cases I dissect out the fistulous tract and close the wound because it unquestionably gives the best results, and there is less likelihood of incontinence. Evidently, Dr. Hirschman is not familiar with the technic for excising a fistula and closing the wound. If he will follow the suggestions laid down in the paper I think he will succeed and be greatly pleased.

THE VALUE OF MAKING LEUKOCYTE COUNTS ON THE URINE IN INFECTIONS OF THE KIDNEY *

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CHICAGO

During the past three years we have been controlling all cases of renal infection, including tuberculosis, that have been admitted to the Presbyterian Hospital, by making leukocyte counts on the urine. It has seemed to us that this was the only way one could obtain definite and exact information relative to the severity of the infectious process, and furthermore, it has been giving us an idea of the improvement in the patient's condition while under treatment.

The idea of making leukocyte counts on the urine is not a new one. Its routine use, however, in the control of urinary infections, hand in hand with bacteriologic controls, I do not think has become an established procedure. I am not familiar with any clinic or laboratory that employs the leukocyte count on the urine as a routine in its daily work, so that I believe the statement is justified, that, as a rule, this procedure is very rarely, if ever, employed in routine clinical work. Just why this should be is not clear, for it is hard to see how one can do accurate work and get along without its use as a control of the progress made in cases of urinary infection that are under treatment.

This method is particularly valuable for informing us of the progress made in cases of infection of the renal pelvis which are being treated by pelvic lavage.

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* Read before the Section on Genito-Urinary Diseases at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

As a rule, indefinite terms, such as "more or less," and sometimes plus signs are used, when referring to the amount of pus present in the urine. In a general way, these terms, being relative, may suffice. Nevertheless, they are open to the criticism that they are not accurate and one cannot tell from time to time the exact amount of progress the patient has made. There can be no question that when one wishes to carry out more accurate work, the use of plus signs, as well as the indefinite terms at present in general use, is most unsatisfactory.

In the treatment of cases of pyelitis by pelvic lavage, one can tell absolutely whether or not the patient is making progress by a comparison of the leukocyte counts made each time the ureters are catheterized. In several instances we have noticed a transitory rise in the leukocyte count after the patients were treated with silver nitrate. We take it that this transitory increase in the number of cells was due to the medication. In many instances, the amount of fall in the leukocyte count from time to time following each treatment has been very striking, as will be illustrated in the case reports.

TABLE 1.—RESULT OF TREATMENT IN CASE 1

Date	Leukocyte Count			Cultures			Treatment	Remarks
	Right	Left	Bladder	Right	Left	Bladder		
11-15-15	360,000	240	220	Sterile	Sterile	Sterile	5 c.c. 10 per cent. protargol; pelvic lavage	
11-29-15	88	308	5,280	Sterile	Sterile	Sterile	5 c.c. 10 per cent. protargol; pelvic lavage	
12- 5-15	4,000	3,850	44	Sterile	Sterile	Sterile	5 c.c. 10 per cent. protargol;—pelvic lavage	
12-14-15	24	13	..	Sterile	Sterile	Sterile	7 c.c. 1 per cent. silver nitrate; pelvic lavage	
12-18-15	....	..	16	....	....	Sterile	....	No cystoscopy
12-26-15	....	..	16	....	....	Sterile	....	No cystoscopy
1-11-16	....	..	35	....	....	Sterile	....	No cystoscopy
1-23-16	....	..	63	....	....	Sterile	....	No cystoscopy

TABLE 2.—RESULT OF TREATMENT IN CASE 2

Date	Leukocyte Count			Cultures			Treatment
	Right	Left	Bladder	Right	Left	Bladder	
5-21-15	638	254	690	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
6-16-15	260	126	300	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9- 3-16	90	80	100	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9- 4-16	49	40	77	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9- 9-16	40	35	115	B. coli	....	B. coli	Pelvic lavage, 1 per cent. silver nitrate
10-12-16	..	..	..	B. coli	B. coli	B. coli	Pelvic lavage, 1 per cent. silver nitrate
10-27-16	32	20	44	B. coli	Sterile	B. coli	Pelvic lavage, 2 per cent. silver nitrate
11- 6-16	3	8	20	Sterile	Sterile	B. coli	Pelvic lavage, 2 per cent. silver nitrate
11-14-16	..	..	154	....	....	B. coli	
11-20-16	..	..	11	....	....	Sterile	
11-22-16	..	..	8	....	....	Sterile	
11-24-16	..	..	20	....	....	Sterile	

TABLE 3.—RESULT OF TREATMENT IN CASE 3

Date	Leukocyte Count			Cultures			Treatment
	Right	Left	Bladder	Right	Left	Bladder	
10-16-16	165	55	880	B. coli, staph.	B. coli, staph.	B. coli, staph.	Pelvic lavage, 1 per cent. silver nitrate
12- 7-16	99	33	220	B. coli	B. coli, staph.	B. coli, staph.	Pelvic lavage, 1 per cent. silver nitrate
12-22-16	*	*	*	....	....	....	Pelvic lavage, 1 per cent. silver nitrate
12-30-16	8	0	0	Sterile	Sterile	Sterile	Pelvic lavage, 1 per cent. silver nitrate

This method may be criticized as being inaccurate and containing the possibilities of error. Doubtless there are many factors which have a direct bearing on the volume of the urine. Nevertheless, it is surely much more accurate than no method at all, and far superior to the use of more or less indefinite terms. This method, technically, is just as accurate as is the counting of the leukocytes in the blood. In view of the fact that the blood volume is constant, the normal number of leukocytes in the blood per cubic centimeter is practically constant. The urinary leukocyte count will naturally vary with the urinary output and is subject to certain variations. The count will be high or low in direct relation to the urinary output.

In order to make our counts as nearly as possible under the same conditions, our patients are instructed to drink 6 ounces of water two hours before and 6 ounces more one hour before the urine is to be examined. Just before taking the first glass of water, that is, two hours before cystoscopy, the patient voids, so that the bladder at this time is empty.

In the cases to be reported in this series, the counts were made on specimens obtained from the right and left kidneys through the ureteral catheter and from catheterized bladder specimens. In a few instances, only the bladder urine was counted, after the kidneys were free from infection and pus.

If each count is made under the same conditions and compared with each previous count, I believe that this method has a distinct value in showing the improvement made from one examination to the next. This can be seen by referring to the case reports.

TECHNIC OF MAKING THE COUNT

In making the leukocyte counts, the urine is not centrifuged. The specimen is vigorously shaken so as to have the leukocytes and the urine well mixed. Toison's solution is drawn to the 0.5 mark and then urine is drawn to 11. This is agitated and a drop of fluid placed on a blood-counting chamber, covered with a cover glass, and the leukocytes are counted in the usual way.

As an example of the results obtained by this method, I wish to present the histories of a few cases which have been selected at random from our records of cases of pyelitis which have been treated by pelvic lavage and in which the degree of infection was controlled by making routine leukocyte counts.

REPORT OF CASES

Case 1.—J. S. F., man, aged 40, on whom a diagnosis of pyelitis with arthritis was made, had begun to have trouble six years previously with a painful swelling of the right knee. This was followed a few weeks later by a similar condition in the other knee. Since then the patient has suffered from arthritis, growing worse gradually. About three years ago the patient began gradually to have urinary disturbances. He was obliged to void about four times every night and sometimes more. There was a burning pain in the urethra.

On admission the patient urinated every half hour during the day. He has had pyuria for several years. The cystoscopic examination showed a generalized cystitis. There were many flakes of mucopus adherent to the bladder wall. Ureteral catheterization was easy and without obstruction. Examination of the urine revealed the presence of pus in the bladder and in the right and left kidney urines. All cultures have remained persistently sterile.

The result of the treatment and its effect on the leukocyte count may be seen at a glance by referring to Table 1.

Case 2.—Mrs. E. H., aged 28, on whom a diagnosis of colon pyelitis was made, had had bladder trouble for many years. She had been married nine years. On her honey-

TABLE 4.—RESULT OF TREATMENT IN CASE 4

Date	Leukocyte Count			Cultures			Treatment
	Right	Left	Bladder	Right	Left	Bladder	
6-22-16	1,122	1,244	1,476	B. coli	Negative	B. coli	Pelvic lavage, 1 per cent. silver nitrate
9-28-16	1,704	242	143	B. coli	Negative	B. coli	Pelvic lavage, 1 per cent. silver nitrate
11-16-16	132	22	187	Sterile	Sterile	Sterile	Pelvic lavage, 2 per cent. silver nitrate
11-28-16	123	18	187	Sterile	Sterile	Sterile	Pelvic lavage, 2 per cent. silver nitrate

TABLE 5.—RESULT OF TREATMENT IN CASE 5
First Admission

Date	Leukocyte Count			Cultures			Treatment	Remarks
	Right	Left	Bladder	Right	Left	Bladder		
1- 5-15	....	....	1,240	....	....	B. coli	....	During the patient's first stay in the hospital she was examined by cystoscope only once; no urine was obtained from the left catheter
1- 7-15	3,520	....	1,370	B. coli	....	B. coli		
1-17-15	....	....	161	....	....	B. coli		
1-18-15	....	....	64	....	....	B. coli		
1-19-15	....	....	350	....	....	B. coli		
1-20-15	....	....	27	....	....	B. coli		
1-20-15	....	....	91	....	....	B. coli		
1-21-15	....	....	33	....	....	B. coli		
Second Admission								
5-10-15	....	....	88	....	....	B. coli		
5-12-15	....	....	770	....	....	B. coli		
5-13-15	....	....	153	....	....	B. coli		
5-17-15	48	33	100	B. coli	B. coli	B. coli	Pelvic lavage; 2 per cent. silver nitrate	
5-24-15	15	22	13	B. coli	Negative	B. coli*	Pelvic lavage; 2 per cent. silver nitrate	
6- 1-15	30	28	40	Sterile	B. coli	B. coli	Pelvic lavage; 2 per cent. silver nitrate	
6- 7-15	26	54	42	Sterile	Sterile	Sterile	Pelvic lavage; 2 per cent. silver nitrate	
6-19-15	11	27	22	Sterile	Sterile	Sterile	Pelvic lavage; 2 per cent. silver nitrate	

TABLE 6.—RESULT OF TREATMENT IN CASE 6

Date	Leukocyte Count			Cultures			Treatment	Remarks
	Right	Left	Bladder	Right	Left	Bladder		
12- 8-16	451	80	1,100	B. coli	Sterile	B. coli	Pelvic lavage; 1 per cent. silver nitrate	
12-12-16	...	..	.....	Sterile	Sterile	Sterile	Pelvic lavage; 1 per cent. silver nitrate	No cell counts made
1- 4-17	0	0	0	Sterile	Sterile	Sterile	Pelvic lavage; 1 per cent. silver nitrate	

* Cultures lost.

moon she had an attack of cystitis, with severe burning pain on urination. At this time she also had frequency, so that she was obliged to rise several times during the night. She had occasional attacks of chills and fever which had been attributed to malaria and to her appendix. She complained of pain on the right side both in front and in back. Four and a half years ago, during an acute attack of pain on the right side, her appendix was removed. She was told that it was not diseased. Cystoscopic examination proved the bladder to be negative. Catheterization of the ureters was easy and without obstruction. The urine showed the presence of pus in both right and left kidneys and in the bladder. Cultures showed *Bacillus coli.* The roentgen-ray examination was negative for calculi. The treatment was pelvic lavage.

Case 3.—Mrs. Dr. F., aged 28, on whom a diagnosis of pyelitis during pregnancy was made, dates the onset of her present trouble from the sixth month of her pregnancy. It was accompanied by severe pain in the right side and in the back. The pain gradually grew worse and was followed by a rise in temperature. The patient had several attacks of chills and fever. Her temperature varied from 95.2 to 103 F. between 1 a. m. and 8 p. m. The patient had her appendix removed for a similar attack of pain before she was married. Cystoscopy revealed a mild cystitis. Ureteral catheterization was easy and without obstruction. The urine from the right and left kidneys and from the bladder showed the presence of pus and a mixed infection of *B. coli* and staphylococci. The patient was given four treatments of pelvic lavage with silver nitrate.

Case 4.—Dr. L. R. F., a man, aged 38, whose case was diagnosed as pyelitis, was operated on in January, 1917, for hemorrhoids. Following catheterization, cystitis developed, accompanied by frequent urination and pain. The urine was examined and pus and *B. coli* were found. The roentgen-ray examination was negative. Cystoscopy showed the following: The bladder was negative. Double ureteral catheterization was easy and without obstruction. The urine from the right and left kidneys and from the bladder showed the presence of pus. The right kidney and bladder urines showed *B. coli.* The left kidney was sterile. The patient was treated by pelvic lavage with silver nitrate.

Case 5.—Mrs. F. P., aged 27, whose case was diagnosed as colon pyelitis, complained of frequent and burning pain on urination, chills and fever, and pain in the right lumbar region. Severe backache at night began about three weeks ago, which was relieved by lying on something hard. The urine became irritating and she was obliged to urinate every few minutes, both day and night. At this time she began to have chills which were followed by a rise of temperature. For a few days previous to this she had had two severe chills each day. A steady backache had been present for the last three weeks. The roentgen-ray examination was negative for stone. Cystoscopy showed the right ureter edematous and swollen. The left appeared normal. A mild degree of cystitis was seen at the base. Ureteral catheterization revealed no urine from the left kidney. That from the right side contained pus and *B. coli.* At the subsequent examinations there was no difficulty in obtaining the urine from the left kidney. The patient was given the usual pelvic lavage treatments.

Case 6.—Mrs. E. L. H., aged 41, on whom a diagnosis of pyelitis following pregnancy was made, was suddenly seized, one month after her last pregnancy, with an attack of high fever, associated with chills and sweating. Her temperature varied from 100 to 102.5 F. There were no bladder symptoms. This attack of chills, fever and sweating lasted for sixteen weeks. During this time the urine showed the presence of pus and *B. coli.* The second attack occurred last fall, when the patient was suddenly seized with severe chills and fever, associated with severe pains in the back and lumbar region. The roentgen-ray examination was negative for stones. Cystoscopic examination showed the bladder negative. Bilateral ureteral catheterization was easy and without obstruction. Pus and *B. coli* were found in the bladder urine and in the urine from the right kidney. The left kidney urine was sterile. The patient was treated by pelvic lavage.

CONCLUSIONS

1. This method is of distinct value in showing the improvement made from time to time while the patient is under treatment.

2. It can be carried out without any trouble or inconvenience to the patient.

3. No conclusions can be drawn from a single count. The value of the method must depend on making each count under exactly the same conditions.

4. This method should be considered from a standpoint of comparison.

122 South Michigan Avenue.

ABSTRACT OF DISCUSSION

Dr. Martin Krotoszyner, San Francisco: While I have no experience with comparative quantitative determination of leukocytes present in renal urines, I have for a number of years employed their comparative qualitative estimation for diagnostic purposes in bilateral renal lesions. From the difference in the shape, outline and size of leukocytes and their nuclei, valuable conclusions are feasible in many instances on the nature and extension of the bilateral process, and it is fair to assume that by these means Dr. Kretschmer's method might gain materially in diagnostic significance.

Dr. W. C. Quinby, Boston: Dr. Kretschmer has added one more method to our armamentarium. It is undoubtedly one of value, and can be performed by the clinician. Although I have not investigated the leukocyte count in the urine, I have followed such cases by the bacterial count. The urine of patients under treatment by pelvic lavage has been examined at intervals of about a week in the bacteriologic laboratory. The culture is plated and the number of colonies which grow in a given length of time counted. This can be done with a good deal of accuracy, and, to my mind, is probably better in estimating the progress of a case under lavage than counting the leukocytes. I concede, however, that counting the leukocytes is of real value if a competent bacteriologist is not available.

Dr. George A. Wyeth, New York: I should like to ask Dr. Kretschmer what he considers the normal.

Dr. H. L. Kretschmer, Chicago: About ten to fifteen.

INSOLUBILITY OF SOFT GELATIN CAPSULES *

EXPERIMENTS SHOWING THAT SOFT CAPSULES ARE RELATIVELY INSOLUBLE IN THE STOMACH

F. W. DERSHIMER, M.D.
Director of the work of the International Health Board in British Guiana

At all times, and at the present time especially, it is of great importance to both physician and patient that all drugs be administered in a form that is easily digested and absorbed. Sometimes, however, in our efforts to make medicines pleasing to the palate of our patients, we may succeed too well, with the result that the coatings protect the drugs not only from the action of the saliva, but from the gastric and enteric juices as well. Recent experiments seem to prove that soft gelatin capsules do this very thing.

In September of last year, a local firm offered us some thymol at a very attractive price, stating that they were able to quote so low a price because the thymol had been ordered before the war. Examination of the samples showed that for some reason the drug had been put into soft capsules. To test their solubility several of the capsules were put into a pepsin solution that had been slightly acidified with dilute hydrochloric acid. A hard capsule was placed in some of the same solution as a control and both were incubated at body temperature. The hard capsule broke in four minutes and had completely dissolved in twenty-one minutes. After twenty-four hours, the soft capsule showed no signs of dissolving beyond a slight softening of the outer surfaces. The offer was rejected and nothing more was thought of the matter, it being supposed that this lot of capsules had become insoluble, for some unknown reason, but that others would be satisfactory.

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* The experiments on which this paper is based were conducted with the support and under the auspices of the International Health Board of the Rockefeller Foundation.

Recently, however, our attention was again drawn to the matter by a memorandum from the Malaya Board of the International Health Board. They reported that soft gelatin capsules, furnished by a reputable United States drug firm, were not easily soluble either in digestive solutions or in the alimentary tract. On comparative test, those capsules containing oil of chenopodium removed an average of but 77.5 per cent. of the hookworms present, while equal doses of the same oil, when removed from the capsules before administration, caused the expulsion of 97.9 per cent. of the hookworms. In other words, the capsules decreased the efficiency of treatments by more than 20 per cent.

Thinking that it might be possible that certain drugs affected the solubility of the capsules adversely, we then tested some capsules containing hexamethylenetetramin. It may be remarked that there is no apparent reason why a drug that is so nearly tasteless, even when given in solution, should be put into capsules of any sort. They were offered in the local market in that form, however. Several of the capsules were placed in a similar solution to the one used in our first experiment. After having been incubated at body temperature for twenty-four hours they had not dissolved.

SUMMARY OF RESULTS OF EXPERIMENTS

Kind of Capsules	Time Required to Release Contents When Placed in Acidified Pepsin Solution at Body Temperature
Hard gelatin capsules	4 minutes
Soft gelatin capsules supplied by two different firms	3 hours 50 minutes
Soft gelatin capsules supplied by two other firms	Not released after 24 hours

We then tested a number of soft capsules containing oil of chenopodium. These were manufactured in the United States by two reputable firms other than the one from which the Malaya Board obtained its supply. Our results were similar to those of the Malaya Board, an average of three hours and fifty minutes being required for the capsules to dissolve sufficiently to release the oil. In all cases the hard capsules used as controls dissolved in about the same time as stated in connection with the first experiment. We were not able to test the capsules by administration, as we use oil of chenopodium in but few cases here.

These experiments seem to indicate that drugs should not be administered in soft gelatin capsules, as supplied at present, with any hope that they will act efficiently.

Tongue Evidence of Infanticide.—*In a case mentioned in* the *Clinica Ostetrica* L'Lattes was able to detect by oblique illumination the regular imprint on the tongue of the child of cloth fibers corresponding to the cloth wrapped around the child.

QUININ AND UREA IN THE TREATMENT OF HEMORRHOIDS

SUPPLEMENTARY REPORT *

E. H. TERRELL, M.D.
RICHMOND, VA.

At the meeting of the American Proctologic Society in Detroit, in 1916, I read a paper advocating the use of quinin and urea in the treatment of internal hemorrhoids. At that time, although a few favorable comments were made on the paper, there was apparent a feeling of distrust on the part of some of those present. Since then, however, several members of the society, and many others, have written me of the good results obtained by the method described. It has been very gratifying to learn that others are getting equally as satisfactory results as I have been claiming.

In my previous paper 128 cases were reported. During the past twelve months, I have used quinin and urea in the treatment of 185 cases, making a total to this date of 313 patients on whom I have used the remedy. As in the previous report, I include only those cases in which some definite knowledge of results is known. There have been quite a number of patients who received one or more treatments and then disappeared for reasons unknown to me. These are not included in this report.

During the year, about 20 per cent. of the cases of hemorrhoids examined were found to be complicated by polypi, hypertrophied anal valves, fissures, etc. If the complication was such that it could be removed in the office under local anesthesia, this was done, and the hemorrhoids were treated afterward. In those cases requiring a general anesthetic to get rid of the complication, the hemorrhoids were excised at the same time. There have been quite a number of such during the year, but they have no place in this report and are not included.

Quinin and urea should not be used in inflamed, strangulated or external piles, but is a specific in that large class of chronic internal hemorrhoids, the chief symptoms of which are protrusion and bleeding. A hemorrhoid that is badly ulcerated and bleeds freely will seldom bleed again after the first treatment. To those who have a prejudice against all forms of treatment other than operative, and I know there are many such, I would suggest the use of quinin and urea solution to tide over the bad surgical risks, made so from excessive hemorrhoidal bleeding. You will be surprised how quickly the hemoglobin index will improve.

About 50 per cent. of those with protrusion are relieved of this symptom immediately after all the tumors have received one injection. With those situated lower in the anal canal, the prolapse will disappear gradually, although a marked reduction will be noticed from the beginning of treatment. Soon after a hemorrhoid is injected with quinin and urea solution, it loses some of its flexibility and becomes more or less fixed, when it can be felt very plainly with the finger introduced into the anus. This lessening of mobility accounts in many cases for the sudden relief of prolapse, for a noticeable diminution in the size of the tumors does not begin for several days after treatment. In a few days, a hemorrhoid that has been injected with a solution of quinin and urea has a glazed appearance, and is very much paler in color. A fibrosis with local anemia of the parts has been produced. On account of the fibrosis, the blood vessels are constricted, and, since the parts are denied the usual amount of nourishment, an atrophy is the result. Although the question is open to criticism, I believe this is the manner in which a cure is produced.

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

I have experimented with various strengths of solution in some of my cases, and have finally come to the conclusion that 5 per cent. is approximately the right strength for the average case. Sometimes if a hemorrhoid seems resistant to treatment, as occasionally it does, I use a 10 per cent. solution with better results.

It is my custom to inject one hemorrhoid each succeeding day until all are treated; but, if the sphincters are relaxed, there is no objection to treating two or more hemorrhoids at one time. After all the hemorrhoids have received a treatment, the patient is asked to return once a week until a cure is effected, which takes about six weeks for the average case. At these visits, treatments are alternated from one side to the other, that is, the piles on the right side are injected at one visit and those on the left at the next, so that each hemorrhoid is treated once every two weeks, which, I think, ordinarily is often enough. There is no attempt made to dilate the sphincters, nor do I draw the hemorrhoids down, as is advised by some operators. Personally, I think a Brinkerhoff anal speculum is the instrument of choice in bringing the tumors into view. It is small, conical in shape, and very easily introduced. The pile selected for treatment is cleansed with an antiseptic solution, preferably iodin and alcohol. Enough of the quinin and urea solution is then injected into the pile to slightly distend it. The needle must be very small, and should be inserted at a point as far away from the skin margin as possible, the slide in the speculum being used as an aid in doing this. The injection should be made through and not into the mucous membrane; otherwise a slough is likely to occur. During the course of treatment there are no restrictions whatever placed on the patient. He is allowed to proceed about his business as usual.

Most of those who come to me for the treatment of hemorrhoids are more or less constipated, and since the latter condition most often precedes and is the cause of the former, I deem it necessary that the treatment of both be taken up at the same time. Eliminating appendicitis, bile tract infections and other like intra-abdominal conditions as causes, I have been greatly surprised to find how easily many cases of long-standing constipation are relieved. Most patients while under treatment for constipation need encouragement more than all else, and visiting the physician at regular intervals for six weeks or so, while under treatment for hemorrhoids, offers an excellent opportunity for this. At the same time, other measures deemed necessary are used. Relief from constipation, when possible, is a decided aid in the treatment of the hemorrhoids, and no doubt lessens greatly the likelihood of a recurrence.

The question of whether or not the treatment is painful has been asked many times. From the standpoint of both physician and patient, this is important. Any so-called ambulatory or nonoperative treatment for hemorrhoids that causes pain, or is likely to put the patient to bed, is a failure. An anesthetic and operation is far preferable, if such is to be the case. In fact, on general principles, I am not opposed to operations for hemorrhoids, if properly done. On the other hand, if hemorrhoids can be cured with no more than a slight discomfort and with no loss of time from business, I think it a decided step forward in the treatment.

In properly selected cases of hemorrhoids, treated with quinin and urea, as outlined, rarely does a patient complain of pain during or following a treatment. If the work is done carefully, gently, and without haste, 90 per cent. of the patients will not know when the injections are made. During the past year, in treating 185 patients, three have had pain due to complications, which I will describe. In one of these there occurred an edema of the skin below the point of injection, and it was apparently quite painful for two days. I think the injection was made too near the skin line, a danger I advised against in my last paper. In the second, there developed during the course of treatment a well marked fissure, which necessitated excision. This may have been a coincidence, but I am inclined to believe it was the result of infection from treatment. In the third, there occurred a small marginal abscess a short time after the first visit. After incision and drainage it soon healed, when treatment of the hemorrhoids was continued without further trouble. A complication, such as one of the above occurring now and then, serves to remind the operator of the necessity of a more careful technic.

During the year, every patient treated by the method described has been cured. It is fair to state, however, that among this number there were a few resistant to treatment, sometimes as long as twelve or fourteen weeks being required for a complete disappearance.

In another group, five or six in number, a hard, fibrous hemorrhoid would persist after the others, softer and varicosed, had disappeared. Such a condition is usually anticipated at the first visit, if the examiner is experienced, and a careful inspection is made. The patient should be told at this time that it will be necessary to excise the hard growth, which may be done before or after the softer hemorrhoids are gotten rid of by quinin and urea. In most of the cases with this complication, unless very slight, I have advised an operation at the hospital, when a complete removal of all the hemorrhoids is done.

The treatment of hemorrhoids by the injection of quinin and urea appears simple, and it is; but a thorough knowledge of rectal diseases is essential if one expects uniformly good results. Most important of all is a realization of the class of cases to which it is suited, and its limitations. I hope no physician will attempt to use the remedy until these ideas are thoroughly grasped.

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ABSTRACT OF DISCUSSION

Dr. Collier F. Martin, Philadelphia: Thirteen years ago I read a paper on the "Injection Treatment of Hemorrhoids" before the American Proctologic Society. I have used the injection treatment for seventeen years, and hundreds of patients have been injected, not with phenol (carbolic acid) or quinin and urea hydrochlorid, but with a 50 per cent. proprietary phenol solution. It seems to make little difference what solution one uses, providing one gets the local inflammatory reaction with subsequent absorption, and providing the solution does not produce undue complications. None but internal hemorrhoids are to be injected. These may be readily recognized, as they always are covered with mucous membrane, and are found above the anorectal line. Internal hemorrhoids are innervated by sympathetic fibers only. The spinal sensory nerve supply is distributed to the anal skin and tissues below the anorectal line. In other words, the injections are made only in a practically painless area.

Dr. Terrell gets good results because he knows the rectum, its pathology and its anatomy. He knows what tissues to avoid, and what symptoms to expect. The method is valuable in the hands of a man who takes the trouble to find out how to use it, and how to avoid complications. In the hands of an untrained practitioner, it is decidedly dangerous, and not to be recommended for general use. I have tried the solution Dr. Terrell recommends, but have experienced a little more trouble, probably because I did not stretch the sphincter muscles prior to starting treatment, depending on the anesthetic qualities of quinin and urea hydrochlorid to lessen the tendency to sphincter spasm. This year I reported a case of anaphylaxis occurring from the use of quinin and urea hydrochlorid. This does not condemn the solution, but should make us careful in our selection of patients.

Dr. A. E. Chace, New York: I do not think I ought to let this paper go by without a word of caution from a very young man, and a plea for real surgery in hemorrhoids. I have seen several hundred of these operations and, fortunately, only two deaths that could be attributed directly to the operation. The first was performed by means of a so-called sterile water anesthesia in the clinic. That man got a gas bacillus infection along the perineum, scrotum, thighs, and the anterior abdominal wall sloughed off before he died. The second operation was performed after the injection of quinin and urea. The prostatic plexus seemed to be first involved in the infection; there were abscesses in the liver, and death was of course caused by pyemia. Those are only two cases, it is true, but, just a word of caution: This is not a procedure that is without danger, and few procedures around the rectum, where it cannot be disinfected, are free from danger unless we have perfect drainage.

Dr. D. C. MacKenny, Buffalo: I agree thoroughly with Dr. Terrell. I have used this method a great many times in cases of tuberculous and old people, in whom one would not want to operate, and the results were all that he claimed for the treatment.

Dr. George B. Evans, Dayton, Ohio: I listened to Dr. Terrell's paper last year with not a great deal of favor and would deem myself an ingrate today if I did not rise and make an apology to him in public. On May 28 and 29 I had the pleasure of being the guest of Dr. Terrell and witnessed his work on ten or twelve patients. Unfortunately for me, none of those patients received the first injection. They were all patients who had received one, two, three, four or five injections. I also had the opportunity of being out in his waiting room. He did not know who was out there and the patients did not know I was a physician, and I listened to those patients tell what a good fellow Dr. Terrell is. They thought I was a patient. I asked them if there was any pain, and if one was laid up after the treatment, and I got a negative answer in every instance. I was there free hand and I watched this work carefully, and I want to say that I am convinced that he is doing good work and that these patients are cured. I have not only seen him inject these patients, but with his permission have examined a number of them.

Dr. Emmett H. Terrell, Richmond, Va.: The case reported by Dr. Chase in which infection and death followed the injection of hemorrhoids is unfortunate. I think a man doing this work should be careful of his technic. The hemorrhoids must be cleaned off with an antiseptic solution and the work done with as much care as if he were doing a surgical operation. If the work is done properly there will be few complications. Of course, we are working in an area difficult to clean, and there is always a possibility of infection.

Preventive Medicine in Turkey.—The whole problem of preventive medicine in Turkey is practically untouched. It involves the changing of a whole country from a backward, unprogressive one, where filth and disease make it a real menace to the world, into a clean, liveable country, one which might become progressively a real resource to the world's civilization.—A. R. Hoover, M.D., *The Survey.*

AUTOINTOXICATION IN CHRONIC CONSTIPATION *

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The group of symptoms generally recognized as attributable to intestinal toxemia is too well known to require recapitulation. *A priori,* the most striking fact that presents itself is the great similarity between the symptoms referable to focal infection and those of intestinal toxemia. This analogy at once suggests that the toxemia associated with chronic constipation may have a bacterial origin. In other words, that an infectious agent is present in the intestine itself. This view is supported by the recent work of Lynch and McFarland,[1] Satterlee,[2] Sailer,[3] Smithies,[4] Turck,[5] Barclay,[6] and others. As a contribution to this phase of the subject I[7] have recently reported a series of cases of pus infection of the rectum and lower colon as revealed by proctosigmoidoscopy.

Clinicians have long maintained that constipation per se could not be considered a disease entity, and have pointed out that persons in good health may defecate once or twice a week without resulting subjective or objective symptoms. However, the vast majority of individuals do develop symptoms when the bowel function is inadequate. In the symposium on intestinal stasis at the recent meeting of the American Gastro-Enterological Association, Einhorn, Smithies, Lynch, Draper and others emphasized the view that a diseased intestine is really necessary for the production of symptoms incident to chronic constipation. It appears that the question of absorption of toxic material depends on the integrity of the intestinal wall.

When confronted by a case that presents symptoms that we have learned to attribute to autointoxication, our first duty is to search for foci of infection. Investigation must be made of the teeth, tonsils, nasal sinuses, genito-urinary system, and of the intestine itself, not neglecting the rectum and lower colon. When the search is conducted thoroughly, we shall find that our cases of idiopathic autointoxication will diminish in much the same manner that the term neurasthenia is now applied to a constantly decreasing number of patients. In some cases, however, the most careful search will fail to reveal a focus of infection. Even here we may presume that changes have occurred in the mucosa that at present are not determinable by our diagnostic methods. Turck's[8] suggestion that venous stasis in the wall of the intestine may produce an increased permeability to the passage of bacteria is plausible.

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

[1] Lynch, J. M., and McFarland, W.: Colonic Infections: Some Rarely Observed Unclassified Types, The Journal A. M. A., Sept. 23, 1916, p. 943.

[2] Satterlee, G. R.: Chronic Intestinal Stasis, Am. Jour. Med. Sc., 1916, **152**, 727; The Journal A. M. A., Dec. 9, 1916, p. 1729.

[3] Sailer, Joseph: Three Cases of Colon Infection, read at the meeting of the American Gastro-Enterological Association, May, 1917. To be published.

[4] Smithies, Frank: Chronic Intestinal Stasis and Its Associated So-Called Toxemia, Surg., Gynec. and Obst., 1916, **22**, 57.

[5] Turck, F. B.: Diseases Produced by the Bacillus Coli Communis in the Intestine: Etiology, Diagnosis and Treatment, Internat. Clin., **11**, 30.

[6] Barclay, Harold, and McWilliams, C. A.: Intestinal Stasis, Am. Jour. Med. Sc., June, 1916, p. 822.

[7] Soper, H. W.: The Mucosa of the Rectum and Sigmoid as a Focus of Infection, Boston Med. and Surg. Jour., May 31, 1917.

[8] Turck, F. B.: Intestinal Venous Stasis; Diffusion of Bacteria and Other Colloids, Boston Med. and Surg. Jour., **176**, 663.

We must admit that toxemia may result from chemical changes in the intestinal contents. In this connection the phenomena of anaphylaxis as exhibited by food sensitization must be borne in mind.[9]

Abnormal metabolism of the food protein is a factor to be considered in the production of intestinal toxemia. This aspect of the question is well stated by Brown,[10] who says:

> Back of the mechanics of digestion lies a problem far more complicated, far more difficult to solve, the problem of congenital or acquired hypersensibility to certain stimuli; the question of the overproduction of certain toxic substances, their chemical nature and their possible specificity, and various other questions involving more definitely physical factors, notably absorption and osmosis.

Brown's cases showed marked improvement on a low protein diet. In my own work I have often noted the good effects produced in certain cases of toxic headaches by sharply limiting the protein and reducing or omitting sugar from the dietary. Patients of this class usually present excessive indicanuria, much colonic flatus, and frothy fermentative feces. Moreover, they are, as a rule, in the habit of consuming large quantities of cane sugar. Possibly the presence of an excess of sugar may be a factor in determining the defective digestion or utilization of the food protein in susceptible individuals. Apropos of the carbohydrate element, the work of Pemberton[11] is especially interesting. He produced good results in cases of rheumatoid arthritis by a radical reduction of the carbohydrate in the dietary.

Besides bacterial infection, disturbances in the mechanics of digestion, and aberrant biochemical processes, we must consider a fourth important factor in the development of toxic conditions, namely, the central nervous system. Disturbances of metabolism are frequently encountered in the observation of the functional psychoses, particularly the manic depressive type. One such case deserves special mention. A patient whom I have observed in conjunction with Dr. Frank R. Fry, for the past three years, developed during the depressive phase, glycosuria, acetonuria, and indicanuria. In the intervals between the attacks, the urine is entirely free from these substances. Numerous cases could be cited in support of the contention that toxic states may arise primarily as a result of disturbances in the central nervous system, that they are frequently evanescent in character, and that they disappear regardless of the form of treatment instituted. I emphasize the nervous element in these cases particularly as a warning against giving credence to reports of cures, especially operative results, in patients of the manic depressive type. Milder forms of psychic and somatic disturbances are also elements of importance in the consideration of the etiology, symptomatology and treatment of intestinal toxemia.

The indiscriminate use of cultures of the *Bacillus bulgaricus,* now so much in vogue as a remedy for autointoxication, is open to serious objections. Even in carefully selected cases its value as an adjunct to treatment is questionable. The prevailing impression in regard to its therapeutic worth is probably due to the great food value of fermented milk. Another reason for its popularity is that it offers a remedy that the busy doctor may use without subjecting his patient to the ordeal of a carefully adjusted regimen.

The researches of Herter and Kendall,[12] Raehe,[13] Rettger,[14] Horton,[15] Hull[16]; Einhorn, Wood and Zublin,[17] and Rosenberg,[18] and others have shown the fallacy of attempts to secure the implantation of the *Bacillus bulgaricus* in the intestinal tract. Furthermore, they have demonstrated that diet is the most important factor in determining the character of the bacterial flora.

From the standpoint of economics, the loss in this country must be enormous, when we consider the large expense incurred in the production and distribution of cultures of the *Bacillus bulgaricus.*[19]

The daily use of purgatives is contraindicated, since they disturb the normal peristaltic rhythm. Moreover, the practice of flushing the colon by drugs or the use of water enemas is objectionable, because such procedures result in the reduction of the contents of the colon to a liquid or semiliquid state, a condition that probably facilitates the absorption of toxic material. I have made frequent sigmoidoscopic examination of such cases and have found that the mucosa is constantly coated by a layer of thin fecal matter. The same condition is present in many cases of chronic diarrhea—cases which exhibit marked symptoms of intestinal toxemia. In these cases we have a real "stasis," different from the usual conception of an accumulation of a large mass of fecal matter, but a retention probably much more injurious to the mucous membrane of the bowel.

CONCLUSIONS

1. Treatment should be directed against any existing infectious agent.
2. Reliance should not be placed on the *Bacillus bulgaricus* as a corrective agent.
3. The regular use of cathartics and water enemas must be avoided.
4. An initial radical change should be made in the dietary in an attempt to alter the bacterial flora.
5. The problem of the restoration of colonic function may demand the employment of all our therapeutic resources, medicinal, dietetic, hygienic and surgical.

Wall Building.

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[11] Pemberton, Ralph: Metabolism and Treatment of Rheumatoid Arthritis, Am. Jour. Med. Sc., 1916, **151**, 351.

[12] Herter, C. A., and Kendall, A. I.: An Observation on the Fate of the Bacillus Bulgaricus (in Bacillac) in the Digestive Tract of a Monkey, Jour. Biol. Chem., 1908, **5**, 293.

[13] Raehe, A. H.: A Study of the So-Called Implantation of the Bacillus Bulgaricus, Jour. Infect. Dis., 1915, **16**, 210.

[14] Rettger, L. F.: The Influence of Milk Feeding on Mortality and Growth and on the Character of the Intestinal Flora, Jour. Exper. Med., 1915, **21**, 365.

[15] Rettger, L. F., and Horton, G. D.: A *Comparative* Study of the Intestinal Flora of White Rats Kept on Experimental and Ordinary Mixed Diets, Centralbl. f. Bakteriol., Orig., **73**, 362.

[16] Hull, T. G., and Rettger, L. F.: The *Influence* of Milk and Carbohydrate Feeding on the Character of the Intestinal Flora, Jour. Bacteriol., 1917, **2**, 47.

[17] Einhorn, Max; Wood, Francis, and Zublin, Ernst: Ueber den Einfluss der Milchsäure-Bazillen auf die Darmflora, Arch. f. Verdauungskr., **16**, Part, 3, p. 300.

[18] Rosenberg, Ernst: Kritik des Yoghurt und die Indikationen für seine Anwendung, Arch. f. Verdauungskr., **15**, Part 4, p. 458.

[19] *Manufacturers* of [illegible] cultures do not state in their literature that the [illegible] can be carried on *simply* by reserving a small portion of the fermented milk as a *"yeast" to be* added to the milk instead of using a tablet each time. *I know of* many housewives who successfully ferment *the milk in this manner* and who rarely resort to the tablet or liquid culture.

Husband and Wife—Remedy of Wife for Sale of Opium to Her Husband.—Where the disabilities of coverture are removed and the statute gives every person a right *to damages for* detriment suffered from the unlawful act of *another,* a woman, it is held in the South Dakota case of Moberg v. Scott, L.R.A.1917D, 732, may, under the statute and a *common* law, *recover* damages for loss of consortium and support through the unlawful sale of opium to her husband.

ENTEROCOLONIC CONDITIONS IN CHRONIC CONSTIPATION *

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The fact that constipation has been and is under continuous discussion shows conclusively the lack of perfect knowledge emanating from any source. In this paper I shall include stasis and obstipation under the general term of constipation.

No doubt there is an element of truth in the various explanations of constipation, but it may be safely asserted that many of these explanations require further elucidation. In dealing with this question the surgeon and the general practitioner are apparently arrayed against each other, but, as a matter of fact, the views of both contain much that is true. The great difficulty is for us to see every phase of this immense subject.

In the first place, some thought must be given the more elementary aspects of the question. The whole scheme of alimentation provides for the onward progress of the ingested food; at some points it is retarded, while at others it passes with considerable rapidity. Wherever the ingesta are normally retarded, we are most likely to find increased delay in the progress of the intestinal contents; therefore, it is at those points that we note the greatest tendency to constipation.

Since provision has been made for the food to pass easily through the lumen of the small intestine, we do not frequently find here conditions which give rise to constipation. The character of the food ingested, and the conditions controlling the intestinal, hepatic and pancreatic secretions, together with certain varieties of catarrh do, however, have some influence in the production of constipation. The hepatic secretions, catarrhal inflammations and foods must not be considered lightly in this connection.

The first portion of the intestinal tract where we observe stagnation of the contents is in the terminal ileum. At this point there exists an anatomic obstruction which materially retards the onward progress of the ingesta, the muscle fibers of the terminal ileum being thickened and thus offering greater resistance than the intestine above.

The next point offering obstruction is the ileocecal junction, the lumen here being diminished and also further constricted by circular muscular fibers which permit more perfect control of the ileocecal opening.

CAUSATIVE FACTORS IN CONSTIPATION

In the large intestine are found the chief causes of chronic constipation, the cecum and ascending colon being concerned either directly or indirectly in a large percentage of cases in which patients complain of this symptom. Many reasons may be adduced to explain the frequent stagnation in the right colon.

1. The anatomic arrangement of this segment of the colon is such that it naturally retards easy progress of its contents. The large intestine from the cecum to the sigmoid becomes progressively smaller, the variation between the two extremities being approximately three to one. Thus it may be seen that material forced from the cecum toward the sigmoid will require a pressure from behind many times greater than if the lumen were not diminished.

2. The watery elements of the material emptied into the cecum are rapidly absorbed by the cecum and ascending colon. Because of the obstruction at the hepatic angle, the decrease in the colonic lumen, and the denser consistency of the feces, considerable force is required to propel the ingesta downward into the sigmoid.

3. A most potent reason for stasis in the cecum and ascending colon, and one which is generally overlooked or ignored, is the tightly contracted muscles controlling the terminal outlet of the intestinal tract. Not only are these powerful muscles in a state of tetanic contraction, but there is often sufficient irritation in the rectal and sigmoidal walls to cause an unnatural contraction, thus materially diminishing the normal capacity of these organs for the reception of feces. In every case of chronic constipation it is imperative that these organs be thoroughly investigated. At the time of operation for some rectal lesion, doubtless we have all noted both the sigmoid and rectum filled with water and feces, notwithstanding that a purgative had been administered twenty-four hours previously, and an enema not more than two or three hours before the operation. Again, we frequently hear patients say their "bowels are paralyzed," meaning that when they have a desire to defecate they cannot command sufficient force to expel the feces from the rectum and sigmoid. There is no paralysis in such cases, but on the contrary there is a spasticity which cannot be overcome by normal efforts.

4. There must be a normal balance of intracolonic pressure for defecation to occur normally. If there are contracted segments from irritation and the lumen is thus diminished, there must result a tendency to constipation. On the other hand, if the mucosa of the entire large intestine is actively inflamed, the walls become thickened and contracted, the lumen is materially diminished, an excessive amount of mucus is secreted, the feces are forced onward without time for absorption of the watery elements, and we then have the other extreme, namely, diarrhea.

5. Not infrequently the entire colon is found much larger than normal. Under such circumstances it is easy to understand that a given amount of material cannot pass through the colon with average rapidity when the lumen is large and the walls are unable to contract down on the contents. If the colonic lumen is comparatively small, which of necessity means thicker and more powerful muscle fibers, the contents will be propelled more certainly and effectively. The muscle fibers in the dilated colonic wall are attenuated and weak and, therefore, cannot contract on and move its contents forward with an equal degree of certainty.

6. It must also be conceded that a long transverse colon and redundant sigmoid present a physical condition more difficult for nature to cope with than when these parts of the bowel are of average normal length.

7. It seems useless to add that any growth in the intestinal lumen may cause obstruction and constipation, such as cancer, etc. Of course, as stated in the beginning of this paper, we include under the term constipation those conditions often referred to as stasis and obstipation.

With the feces in a liquid state a great deal of obstruction must be present to prevent fairly easy progress through the colon to the terminal outlet; it is the hard and formed fecal material which passes with difficulty along its course. We can readily under-

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

stand how much more easily patients expel thin and unformed feces from the rectum than when the excreta is formed and hard; and the same holds true of the passage of fecal material along any portion of the intestinal tract.

I wish to remark at this juncture that the condition just mentioned is one of great importance. Many surgeons have performed colostomies in one way or another modifying to a greater or less degree certain points in the technic of the operation, and the patients had little difficulty in control through the artificial opening. The surgeon at once concluded that the modified technic in his operation was responsible for the excellent artificial control. Whatever that modification may have been, no technic has ever been devised whereby colostomy may be done and have any degree of satisfaction in artificial control, with the colonic contents in a liquid state. On the contrary, so far as control is concerned, almost any colostomy will be a success with the fecal contents well formed while passing through the transverse and descending colon.

The same deception applies to destruction of the sphincter muscles in operating for rectal cancer, etc. With the colonic contents dry and formed when passing downward through the sigmoid and into the rectum, any control at the terminal outlet by the sphincter muscles can scarcely be necessary. Owing to the deep hollow in the sacrum, and the provision made by the sigmoid for retaining the feces, exit is delayed until forced forward by the accessory muscles of defecation, aided by peristalsis.

Attention is called to the foregoing facts because they illustrate more forcibly than any other argument I could present, the importance of understanding the difference in the amount of power required to move forward the colonic contents in liquid and solid forms.

8. In addition to the foregoing causative factors in constipation, it is my opinion that there is no element which plays a more important rôle than that of bacterial life. The organisms are so numerous, they thrive and multiply under so many varying circumstances, that it is impossible with our present understanding of germ life to properly estimate their full influence as causative factors either directly or indirectly in the production of constipation. The intestinal tract is so constructed that there is the least possible tendency for friction or the adherence of material to the mucosa. The greatest possible provision has been made for the easy movement of the ingesta by the polished epithelial surface of the mucosa, with the production of abundant mucus, which is unequaled as a lubricant.

The first effect that bacteria produce as a causative factor in constipation is an inflammatory reaction in the mucous membrane. The superficial cells become roughened by granulations, which has a marked effect in retarding the progress of the intestinal contents because of the disposition for material to adhere to the roughened surfaces. Many patients would be affected with pronounced constipation, when the mucous membrane is in this chronic state, were it not for the production of an abundance of mucus which compensates for this defect. When inflammation is active and mucus is produced in large quantities, and when the irritation is sufficient to cause contraction of the intestinal wall, we have the other extreme, namely, diarrhea. As will be mentioned later, a large percentage of constipated individuals give a history of having had, a number of years previously, an attack of some acute inflammatory disease involving the intestinal mucosa. These inflammatory areas are what might be considered the direct influences of bacteria on the intestinal mucosa.

The second influence of bacteria as factors in the production of constipation is on the musculature of the intestinal wall. As already suggested, the effect of very active bacterial life on the intestinal mucosa, whether there be ulceration or not, with the irritation of the nerve endings in the mucous membrane, the exaggerated contraction of the muscular wall, and an abundance of mucus, all taken together, produce diarrhea or dysentery. When there is gradual subsidence of the irritating effect of bacterial life on the tissues, then the intestinal walls begin to relax, the overstimulated mucous glands contract and produce a diminished amount of mucus, and the epithelial cells become granular from the chronic infection present. This stage, though months or years may have elapsed since the initiation of the infection, may be the beginning of chronic constipation. As the musculature relaxes under the influence of bacterial infection, with consequent increasing dilatation of the intestinal wall, an increased atrophy of the mucous glands, and also an increased granulation of the diseased epithelial cells, the constipation becomes more pronounced. We must recognize, however, that the degree and type of bacterial activity extends over, and may be responsible for, an infinitely wide range of varying symptoms.

The infection may be confined to comparatively narrow limits in the intestinal tract, or it may include the entire large intestine and the lower portion of the ileum. It may never invade the intestinal serosa, or it may produce extensive veils, bands and adhesions. The infection may be very mild and affect the epithelial cells of the mucous membrane only to a small degree, or it may affect the mucosa and the musculature and not the serosa. The character and activity of the germ life may be exceedingly mild or very severe. While some authors deny the existence of such a type of constipation as that recognized as spastic, it is true that certain types of irritation do exist wherein segments of the colon contract with unusual force and thus act as a source of mechanical obstruction to the progress of fecal material.

I have under observation at the present time a patient who has this condition in a most exaggerated degree. With the patient placed in the inverted position there is no difficulty in seeing one tightly contracting ring after another as the sigmoidoscope is introduced into the pelvic colon.

Again, the infection referred to often extends to the tissues of the anal outlet, and, as I have previously stated, it is at this point where we observe the most pronounced contractions to be found anywhere along the entire alimentary tract. In my opinion more stasis is produced in the large intestine and the terminal ileum by spastic contraction of these muscles than by any other factor entering into the etiology of constipation.

It is so seldom that examinations are made of the rectum, or rather the muscles controlling the rectal outlet, that it is quite impossible to estimate the magnitude of this phase of the subject. When due consideration is given this question it will be recognized that every abnormally contracted sphincter muscle is pathologic, and is a factor tending toward the production of constipation. The muscles may be very much hypertrophied and tightly contracted, and yet the patient may not complain of constipation. Under such circumstances, however, there are compensatory conditions existing higher in the intestinal canal whereby the contents are rendered either especially thin, the mucosa is unusually well lubricated, or some exaggerated lesion is present.

I will state that the chronic types of infection found at the rectal outlet are in some instances the most obstinate benign conditions that we have to contend with from the standpoint of effecting permanent relief, and this point should be borne in mind in all cases.

I have been especially interested in the source of these infections which play such an important part in constipation. It has been my observation that almost all of them have their origin in early infancy where the digestive apparatus remains deranged for a long period, or in some acute intestinal disease, such as typhoid fever, amebic infection, so-called flux, hookworm disease and other forms of infection. These attacks may have occurred years previously, yet it is significant when we note the large number of persons who have constipation and who give such histories.

Other enterocolonic lesions noted in constipation, with which you are familiar, and which have been extensively discussed during the last few years are veils, bands, adhesions and allied conditions. While these may be important factors in a certain number of instances, doubtless their significance has been greatly overestimated. In other words, there are many cases of obstinate constipation in which veils or bands are present, but if the other causative factors were removed and the veils allowed to remain, the patients would be completely relieved. Without making extensive reference to the cause of these bands and adhesions, it appears most logical that they are the results of bacterial activities, having their origin in the intestinal lumen during typhoid fever, amebic infection, flux and other inflammatory conditions. It seems to me that proof beyond peradventure has been established showing the relationship between these accessory tissues and the various infections just mentioned.

It is surprising to note the number of patients who complain of pain simulating appendicitis, in whom there is a previous history of acute intestinal infection followed, perhaps years later, by constipation, indigestion and other conditions resulting from bowel inactivity. At operation the blood vessels in the serous coat overlying the colon and appendix are found engorged, adhesions and veils are present, and the appendix is removed without subsidence of the constipation and pain. These facts show the intimate relationship between the infection, constipation, bands, veils and other results of inflammation.

I wish to refer briefly to the question of ileocecal insufficiency. That there is more frequently a reflux of the cecal contents into the ileum than was formerly supposed cannot be doubted. In a very large number of patients it has been found that one out of six has ileocecal incompetency. An ingenious operation has been devised for the correction of this defect, but it has not been satisfactorily proved that the method always gives permanent relief. If stasis in the cecum and ascending colon is the chief factor in producing ileal regurgitation, then it is evident that the cause of the stasis should be determined and relieved.

I have referred to the powerful influence of the tightly contracted, irritable and hypertrophied muscles controlling the rectal outlet, the dry condition of the colonic mucosa and the other conditions recognized as factors in the production of constipation. If these conditions exert as potent an influence as suggested, and there can be no doubt that they are important forces in producing stasis in the right colon, then it would be logical treatment to remove the cause, after which it is more than probable the ileocecal defect would be corrected. I think this is a point at least worthy of consideration.

In conclusion, I wish to emphasize that we, as physicians, should view this subject in its broadest sense. We will be able in this way to glean the facts necessary for a comprehensive understanding of the question much more successfully than by studying it from a narrow and contracted standpoint.

RECTAL CONDITIONS IN CHRONIC CONSTIPATION *

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Prima facie, nothing appears easier than the diagnosis of chronic constipation. Nevertheless, in not a few cases, it may be an exceedingly difficult task to determine accurately the etiologic factor. Many cases are due to mechanical causes which, not infrequently, are never recognized or even suspected. With the improved modern methods of examination at our command, physical, gastric analysis, examination of the stool, roentgenology, and proctologic examination, to which is added the clinical subjective signs and symptoms, an accurate diagnosis can and should be made in the majority of cases.

No case of chronic constipation is diagnosed correctly or should ever be treated as such, until a thorough proctologic examination has been made. The rectum, in many cases, is found distended with feces, the patient not experiencing the slightest sensation of its presence and having no desire whatever for stool. This rectal stasis may be atonic in character, or it may have its origin in definite rectal conditions. If atonic, it usually has its onset early in life. Repeated and prolonged inattention to the calls of nature, such as indolence, absolute disregard, and even resistance, obtund the nerves of the rectum so that they do not respond to stimulation. Murray attributes this loss of the sense of rectal pressure to "carelessness, ignorance and laziness."

Rectal conditions, as a rule, are easily diagnosed by a thorough proctologic examination. This examination, by itself, is insufficient, and, in many cases, will not determine positively that the constipation has its origin in rectal conditions. I cannot emphasize too strongly the fact that identically the same rectal conditions may cause chronic constipation in one patient and yet have no appreciable influence in retarding the excretion of feces in another. If repeated digital examinations of a patient who has been given neither medicines nor enemas reveal a large amount of feces in the rectum, this alone should cause us to be suspicious of a rectal stasis. If the rectum is found to be almost or quite empty, we should feel reasonably certain that the constipation is due to delay higher up; and yet, we should not overlook the possibility of the

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delay higher up having its origin in some rectal condition. In many cases, roentgenoscopy as applied by a skilled roentgenologist, which implies careful fluoroscopic study and many roentgenograms showing the passage of the barium meal through the alimentary tract, is the only method of examination at our command by which we can ascertain with any degree of precision or absolute certainty that constipation is of the rectal type. If rectal stasis is diagnosed, the presence or absence of rectal conditions is easily determined by a proctologic examination. Such a diagnosis enables us to assume a more positive attitude as to our ability to cure the constipation by correct treatment of the real etiologic factor.

In ulcerations, acute or chronic, of the anorectal region, defecation is frequently voluntarily inhibited from fear of the pain produced in the act. The sphincter muscle is in an irritable state, and the presence of feces in the rectum apparently excites it to frequent and prolonged contractions or spasms, with a resulting hypertrophy that may cause actual obstruction. Matthews holds that many cases of constipation are the result of spasm or hypertrophy of the external sphincter muscle, and in cases in which it has been cured by hemorrhoidectomy, the real benefit has been derived from the divulsion of this muscle. Hypertrophy of the levator ani muscles, according to Gant, may result from chronic pelvic, uterine, vesical and rectal diseases, and by contracting the sides of the rectum, may induce constipation. I have never encountered a case of chronic constipation that could be attributed to this condition. Hypertrophy of the circular muscular fibers of the intestine at the juncture of the sigmoid and rectum may also be a causative factor. This is a very rare condition, and it is not easy of diagnosis.

The rectal valves of Houston have been the cause of much discussion. That they are at times abnormally developed, that they can and do become hypertrophied, and that they may and do obstruct or impede the fecal current cannot be denied. However, my own findings have not been such as to enable me to corroborate the statements of surgeons of longer and much larger experience, that these valves are a very frequent cause of constipation. Hirschman says:

> Patients with so-called constipation who have run the whole gamut of cathartics, enemata, massage, dietetics, electricity, osteopathy, and Christian Science, have not been relieved until they have had proper proctologic examination and the enlarged rectal valves which were discovered relieved by valvotomy.

In every case of chronic constipation, the valves of Houston should be studied.

Hemorrhoids, both external and internal, may cause constipation, especially when they are inflamed or thrombosis has occurred in them. The real causative factor in such cases is the hypertrophy of the sphincter muscles, the result of constant irritation and spasm. Hemorrhoids may also attain such a size as to block or obstruct the anal canal.

Intra-intestinal tumors, such as polypi, adenomas, papillomas and fibromas very seldom attain sufficient size to retard or obstruct the excretion of feces. I recall two cases in which constipation was the result of a rectum practically filled with polypi. When complicating other rectal conditions, such as anorectal ulcerations or hemorrhoids, these intra-intestinal tumors must be reckoned as a possible etiologic factor in constipation. So long as polypi remain well up in the rectum, patients, as a rule, are not aware of their existence. When they prolapse, they may cause sphincteric spasm and hypertrophy. Prolapse of the rectum, especially when the upper portion becomes invaginated into the lower and protrudes through the anus, may cause obstipation.

Stricture of the rectum, cicatricial or malignant, always causes more or less obstipation. If well advanced there may be a combination of obstipation with a nagging, teasing diarrhea.

In fecal impaction, rectal in type, there may be a constant desire to go to stool, with an inability on the part of the patient to evacuate the mass. The levator ani and sphincter muscles may be injured. As a result of frequent and long continued spasmodic contractions, they may become hypertrophied to such an extent as to be the cause of chronic constipation after the fecal impaction has been removed.

Foreign bodies in the rectum may cause obstipation, and the symptoms are practically the same as those of fecal impaction. The foreign bodies may have been swallowed, introduced into the rectum by accident or for the purpose of concealment, or for the relief of certain symptoms.

Extrarectal conditions, such as enlarged prostate, stone in the bladder, urethral stricture, uterine and ovarian tumors, uterine displacements, pelvic inflammatory diseases, perineal lacerations, rectocele, and deformities of the coccyx are not infrequently the primary cause of the rectal type of chronic constipation.

Retroversion of the uterus, by its pressure on the rectum, may cause a partial obstruction of the fecal current, or by interfering with the normal muscular movements, diminish its expulsive force. The same is true of a heavy uterus or a large uterine fibroid, an impacted myoma, or an ovarian tumor growing between the leaves of the broad ligament and complicated by pelvic adhesions, so that it cannot move freely. Severe puerperal parametritis may involve the rectum to such an extent as to constrict its lumen even to complete occlusion.

Rectocele, as a rule associated with cystocele and prolapsus uteri, the result of extensive lacerations of the perineum involving the triangular ligament, rectovesical fascia, and anterior portion of the levator ani muscles, may render defecation impossible without manual reduction of the prolapsed parts. Hemorrhoids and other rectal conditions are not infrequently the result of these relaxed conditions, and tend to aggravate the constipation.

Gant reports two cases in which there was an orange-sized opening 2 inches above the anus, with a pouch which passed downward and backward, displacing the coccyx posteriorly; also two cases in which there was congenital absence of the coccyx, with bulging posteriorly of the lower rectum. Constipation was the result of these conditions. Sacrococcygeal tumors, and deviations of the coccyx, especially when the lower segments are fixed and project inward at a right angle with the sacrum, may be the cause of delay in the excretion of feces.

Stone in the bladder, urethral diseases and enlarged prostate may produce sphincteric spasm, with subsequent hypertrophy and constipation.

Enemas are an excellent occasional resource and of undoubted value in selected cases. In the majority of cases, however, the daily routine practice of introducing large quantities of fluid, often irritating in character, is not only injurious, but tends to aggravate, rather than to relieve or cure the constipation. John Burne, in his treatise on the causes and consequences of habitual constipation, published in 1840, says:

> Previous to the great intercourse which has taken place between France and England since the peace, lavaments were looked upon with disgust and horror, and had recourse to only on extraordinary occasions. Now they are in common use. As a means of obviating habitual constipation they are employed by some persons daily, with the effect of exonerating the large intestine more or less. However efficient they may, in this respect, appear to be, I have found from long observation that they are not free from very great objection. In the first place, they do not continue to relieve the bowels fully and freely for any length of time. In the next place, they do not dispose the bowels to resume their natural action, but, on the contrary, render them more confined. In the third place, they wash off the mucus from the intestine, which is followed by a degree of irritation and an unpleasant sense of heat, very similar to that which occurs after washing the hands in water simply. In the fourth place, the feces become more scybalous and hard under their use. And lastly, the individual does not feel the comfort or conviction of having had his bowels fully relieved, on which account he is often induced to resort to a second lavament on the same day. Lavaments fail in completely obviating or curing habitual constipation.

In every case of chronic constipation, the anus, perineum, buttocks and genital organs should be inspected and palpated, and any abnormality of these parts which might cause sphincteric spasm, occlude the anus, or in any way interfere with the excretion of feces, should be carefully noted.

Digital examination is next in order, and since most rectal pathology is to be found within the first 2 inches from the anal outlet, it is our most valuable method for detecting rectal, and even extrarectal, conditions, which, alone or together, may be responsible for delay in the passage of fecal matter. Much unnecessary suffering is the result of hurried digital rectal examinations. When the sphincters are so sensitive or tightly contracted as to prevent digital examination being accomplished without great pain to the patient, Hirschman advises dilation of the sphincters by means of local anesthesia.

Internal inspection of the anus, rectum and sigmoid is demanded in every case, and is made with the patient either in the knee-chest, the knee-shoulder, or the Sims' position. Such an examination enables us to diagnose accurately a pathologic condition involving these parts. It is essential that the rectum shall have been emptied of feces before this examination is begun. Force should never be employed in the introduction of the anoscope, proctoscope or sigmoidoscope, and it requires not a little practice in order to introduce these instruments properly and painlessly.

The treatment of chronic constipation implies the treatment of the various conditions that cause it. Rectal conditions, either alone or complicated by extrarectal conditions, are frequently the cause of deficient or retarded fecal movements. Chronic constipation is not infrequently the cause of hemorrhoids, ulcerations, excoriations, sphincteric spasm and hypertrophy. No matter whether the rectal conditions are the cause or the result of chronic constipation, their appropriate treatment, medical or surgical, is clearly indicated if a cure of the constipation is to be effected.

When the fecal stasis is the result of an atonic rectum, I have secured the best results from direct stimulation by means of mechanical dilatation, such as has been recommended and practiced by Turck, McMillan, Teachnor and Hirschman. Regarding this treatment by direct stimulation, John Burne, in his interesting treatise on constipation, published seventy-seven years ago, says:

> The bougie may, I think, be had recourse to with advantage more frequently than is customary in the treatment of habitual constipation, and some of its consequences. A bougie of moderate size introduced into the rectum and allowed to remain some minutes has been found on withdrawal to be followed by an action of the bowels. Employed for this purpose, it should be introduced 8 or 9 inches, so as to arrive at and dilate the upper part of the rectum, which, according to O'Beirne, is always contracted and in a state of spasm. The most convenient time for its employment is before rising in the morning, and its use should be persevered in daily by the patient himself.

CONCLUSIONS

1. No case of chronic constipation is diagnosed correctly or should ever be treated as such until a thorough proctologic examination has been made.

2. The same and identical rectal conditions may cause constipation in one patient, and have no appreciable influence in retarding the excretion of feces in another.

3. In many cases, proctologic examination alone will not determine positively that constipation has its origin in rectal conditions. It must be supplemented by a careful roentgenographic and fluoroscopic study of the alimentary tract. Such a diagnosis insures the patient correct treatment and satisfactory results.

4. Rectal conditions are frequently the primary causative factor of chronic constipation. On the other hand, constipation may be the cause of various rectal conditions. Whether the cause, or the result, of chronic constipation, the appropriate treatment of rectal conditions is essential if a cure is to be effected.

ABSTRACT OF DISCUSSION

ON PAPERS OF DRS. SOPER, HANES, AND GRAHAM

DR. HENRY ILLOWAY, New York: I fully concur in the statement that whatever value the Bulgarian bacillus has lies only in the fermented milk, its carrier, when that is permissible, and that it offers a remedy to the busy practitioner who is not familiar with all the intricacies of diets.

This matter of autointoxication is so harped on in the medical journals that most physicians have become convinced that every ailment, great or small, has its origin in the intestinal canal. The manufacturers of drug combinations have not been slow to seize on this, and circulars with reports of cases full of the horrors of autointoxication, with big headings and thick type, *"Clean up, Clean out,"* are showered on us daily.

We have had a whole series of morbid conditions thrown together into one bag, as it were, and labeled chronic constipation. Constipation may be a morbid entity, or it may be merely one of a group of symptoms of an underlying pathologic condition. When constipation is due to a fissure of the anus, or to abnormal development of hemorrhoidal tumors, or when it occurs in the course of cancerous disease of any part of the intestinal canal, it is not proper to call the case one of chronic constipation. The constipation is only one of a group of symptoms, which, if carefully studied, will disclose to us the pathologic condition that gave rise to it. When we speak of chronic constipation as a morbid entity, then we can mean only that form of constipation usually spoken of as habitual constipation, the consequence of an atony of the intestinal muscles.

The authors of the papers have not set forth the precise symptoms by which they diagnosticate the autointoxication due to chronic constipation. It is, however, just these details that would enable us to judge what they regard as autointoxication. Symptoms are susceptible of varying explanations.

Dr. Dudley Roberts, Brooklyn: The gastro-enterologist needs to know more of proctology and vice versa. Autointoxication is the fad of the day. While there are normally sensations arising from the filled sigmoid and rectum and a sense of well being attending satisfactory defecation, the hypochondriacal individual makes too much of such sensations. I am of the opinion that the symptoms that arise from stasis in the distal colon are largely pressure phenomena associated with hypochondria. I doubt that they are toxic. When infection of the part is added, it is quite another story.

Stasis in the right half of the colon, on the contrary, does, it seems to me, at times result in toxemias. What the toxic substances are and why they get to and through the liver we do not know. Our work on this subject will be unsatisfactory until we have a test of blood or urine that is more than slightly suggestive. Clinically we have such conditions. These individuals may or may not be constipated. Even in cases with diarrhea one sees long stasis in the right half of the colon. Dr. Soper has spoken of the infections of the colon; and while they may no doubt play a part, I do not feel that they represent more than a small group. I think that we shall find one of the most profitable fields for study in the anaphylactic group. From my experience I am convinced that, in some cases at least, stasis in the terminal ileum and cecum is responsible for the sensitization we see in some individuals. There is some reason for believing that some of the chronic arthritic groups are truly toxic rather than infectious. In addition there are cases such as were described by Satterlee. I feel that in these cases one should accept as a last resort the explanation of symptoms as due to intestinal intoxication, and then only when abnormal stasis in the ileum or right half of the colon can be clearly demonstrated. We must not lose sight of the fact that there are many possibilities of autointoxication from disturbances of metabolism in the liver, in the muscles and other tissues. We must always keep in mind the possibility of abnormal glandular activity as a cause of so-called intoxications. On the whole, I am inclined to the opinion that while in a small proportion of cases we have to deal with a true intestinal toxemia, the tendency at present is greatly to exaggerate its frequency and importance.

Dr. Walter A. Bastedo, New York: Among the causes of constipation Dr. Hanes included the diminution in the size of the colon from above downward, the lower part of the colon having only one third the lumen of the upper part. But I do not think that this in the slightest degree is a factor in producing constipation. The small intestine passes the food residue along at a rapid rate and empties it into the cecum quickly, because it has a special form of peristalsis; but, fortunately for us, the same kind of peristalsis does not take place in the colon, and ordinarily the food residue takes many hours to get down into the pelvirectal reservoir. In the process the contents lose much bulk, and there is no evidence that the tapering lumen is in any sense an obstruction.

In working with the intestines of animals one can make a considerable obstruction, particularly to the small intestine, and still, if there is peristalsis, observe the feces perfectly well pass the obstruction, the kink, or even a moderate weight put on the intestine. Indeed, a kink often straightens through peristaltic action, and unless it makes an anatomic stricture of marked degree, or spasm resulting from irritation, it is unimportant as a cause of constipation.

I believe that heredity is a very distinct factor in making "kinds" of bowels. I have known a family in which three members had the appendix removed; also two cousins, making five appendixes of blood relations. In all five the appendix was retrocecal. This was known as a constipated family, yet each member who had the appendix removed has become free from constipation. In another instance I saw a grandmother who had achylia gastrica, the daughter also had achylia, and the young granddaughter of 18 years had achylia. On the other hand, the grandfather, as shown by the roentgen ray, had a very redundant colon, a large sigmoid, and a movable cecum which crossed the sigmoid. The daughter had the same kind of colon, and the granddaughter has that kind of colon now. The grandfather, the daughter and the granddaughter have shown a severe degree of intestinal poisoning, but the grandmother, who has the achylia gastrica but not the redundant colon and cecum mobile, has never shown intestinal poisoning and is now a very old woman. I think that heredity from the two grandparents made a bad outlook for the two generations below.

Dr. Joseph C. Bloodgood, Baltimore: I think perhaps it may be of interest if, in a few words, I give you, as a surgeon, my experiences with lesions of the colon other than cancer, of which perhaps the larger group covers a condition associated with chronic constipation and what may accompany that; that is, leaving out all the cases in which, from a cross examination, there is no pathologic condition of the colon—no colitis in the sense of an ulcer, no organic stricture the result of an ulcer, no multiple polypoid tumors, no diverticulitis, no appendicitis—at least outside of the appendix in the region of the cecum—but a patient with chronic constipation and following, with its duration, other symptoms. I do not believe this is a single disease; I feel that it is a terminal disease. I want to impress that on you. My experience is that in the beginning I operated on more patients than I have in the last two years. I think my entire number is sixty, and in the last two years I have had two. Now, what is the explanation of that? In the first place I have never proceeded to an operation in any of these cases unless the patients were referred to me by medical colleagues who told me that they had done everything they could and wanted some help from surgery. Now, why has that taken place? One explanation is that there are more well trained gastro-enterologists in the clinic. This is absolutely true in my clinic, because, until a few years ago, we had no department at Johns Hopkins, or associated with me at St. Agnes, but since we have had such a department the men in my own room see more patients and operate on less.

Is all the credit due to the gastro-enterologists, or is there another element? I feel there is another element. Even if we cannot agree with Lane, and feel that some of the surgery, much of the surgery, or even all of the surgery of this type of colon lesion of the past has not been justified, nevertheless he has given to the colon, not only to the profession but to the public, more publicity than any other method of treatment.

Dr. Emmett H. Terrell, Richmond, Va.: It is absolutely essential for success in the treatment of constipation to be able to distinguish between conditions due to general causes and those resulting from obstruction. At times it is easy, but frequently an examiner is called on to exert all his ingenuity to define these cases. I find that a great many people are constipated because they think they are constipated. By that I mean that they are so in the habit of taking pills each night on retiring that they never give the bowels a chance to move naturally. If these people can be induced to stop the use of laxatives for a short time, with the proper regulation of their diet and the administration of a little petroleum oil, a great many cases will respond readily and without trouble.

I should like to refer for a moment to a condition commonly called mucous colitis. In these cases, while there are frequently several movements of the bowels in twenty-four hours, the patients are really constipated. The ordinary remedies which have been suggested for the treatment of mucous colitis in my hands have been absolutely worthless, and, in fact, I think irrigations of the rectum and the colonic flushings with various medicinal substances do more harm than good. I hesitate to suggest a remedy which has been found very beneficial because I cannot explain its action. I refer to the administration of large doses of bile salts.

Dr. Jerome Meyers, New York: I have followed the subject of intestinal autointoxication for a number of years and believe it is a mistake to speak of autointoxication. It is better to use the term indicanuria. The most important causes of indicanuria are improperly digested protein, the colon bacillus, constipation, with injury to the intestinal mucous membrane, possibly a lack of detoxifying power of the liver, and possibly the reaction of the intestinal contents, whether acid or alkaline.

I was interested in Dr. Soper's mention of sugar in autointoxication. Sugar does not give indican, but indolacetic acid in the urine. I followed this for a number of years, but obtained no practical results either in treatment or the examination for this acid in the urine.

With regard to protein decomposition and the colon bacillus, in fully fifty cases I have obtained results with the Bulgarian bacillus. I cannot agree with the gentlemen who hold that this treatment is of no value. Together with a low protein diet, I have seen it repeatedly clear up the most marked indicanuria in one to three weeks. One can expect no results unless a live bacillus is used and its use is persisted in for at least three weeks. The more ptotic the intestines are, the more difficult it will usually be to clear the urine of indican.

One other consideration is of importance—the intestinal mucous membrane itself, not only through possible gross defects, allowing indican to reach the portal blood, but the escape of indican through physiologic changes in the membrane, either of osmotic pressure or acidity or alkalinity. Protein decomposition is an alkaline process. It is interesting that the use of the *Bacillus bulgaricus*, which causes an acid reaction, should cause a diminution in the amount of indican. Again, in the use of Carlsbad or Vichy salts, both of which are strongly alkaline, I have been highly interested to note that whether the protein were restricted or not, or whether *B. bulgaricus* were given in conjunction or not, the amount of indican in the urine, even though the patient felt better, was never very materially decreased, and might even be increased.

Dr. Martin E. Rehfuss, Philadelphia: We know the roentgen ray gives a so-called cast of the interior, and absolutely nothing regarding the chemical functions of the bowel, stomach or any of the organs. Today we are in a position in which we need methods of precision. One of the matters recently investigated was the question as to what actually exists chemically in the bowel and the method of obtaining samples for analysis. Diagnosis is based on the examination of a test meal, the roentgen ray and physical examination. By suitable apparatus it is possible to remove material from different parts of the bowel and demonstrate the changes in the bowel itself. We know the cecum is rich in bacterial mediums. The observations on this are too numerous to mention. This has been borne out in examinations of a number of Lane's cases seen in Paris and in this country. None of Mr. Lane's patients are in perfect condition for any length of time. The curious thing is that the material removed from different sections of the bowel is different. I do not know the explanation of this phenomenon, but as one continues to irrigate the bowel one can demonstrate unquestionably the difference in the intestinal liquid. One can fill up the colon with liquid and cannot outline the dulness because almost invariably there is air in the bowel. Therefore, that method must give way to the method of palpation which differs with the degree of retention in each individual case. As the bowel is emptied the material will change and get lighter in color, and suddenly there may be found a large amount of putrid material, darker in color. Then again, for a half hour one may obtain nothing. We have used this procedure in several hundreds of cases but are not yet prepared to say what method is best for examining the specimens after removal. We simply examine the specimens from different levels microscopically. Although a half hour's irrigation frequently gives nothing, we then get material which may contain cellulose, leaving no doubt in our minds whatever, as to the fact that material is from high in the bowel; then we get another type of material. We use on an average from 6 to 8 gallons of liquid, and never introduce the rectal tube beyond 4 inches in the bowel, because further introduction is difficult. All the cases have been proctoscoped. Most of the problem remains to be solved, and until we do this we cannot possibly realize what autointoxication means.

Dr. W. L. Chapman, Providence, R. I.: We have been talking about autointoxication and have been told a number of times that there is no such thing. The painstaking labors of many clinicians and chemists have either been forgotten or discounted. Not once have natural methods of cure been mentioned. There are many cases of hard-working, sedentary people who have to be careful in their diet, but let them browse around on a farm for a few weeks, live out of doors, swim, play tennis, or work in a garden, and they can eat all sorts of indigestible things and "get away with it." Take the poor dyspeptic shop girl and give her two or three weeks in the country and see how her digestion improves!

We see many cases in which the abdomen sags, and by simply exercising the abdominal muscles the abdominal tone is restored and the first thing one knows the bowels will act without any medicine at all. Physical therapeutics will do much.

Every patient who comes to the gastro-enterologist should have a complete physical examination beginning with the teeth. The nose and throat men take out the tonsils because they are carriers of infection, leaving decaying teeth which should be removed at that time. If not competent to extract teeth, a dentist should be in attendance, thereby saving the patient the trouble of another anesthetization, which in children is difficult to obtain. Again, it is not beneath the dignity of a surgeon to clean up the mouth after an abdominal operation, or have it done.

Every patient should have a complete roentgenologic study of his entire gastro-intestinal tract. Until one has this one knows nothing about the orientation; whether the colon goes in a straight line or is soldered to the bladder by adhesions. If the patient is to be operated on all the important points should be recorded for the surgeon.

Dr. Milton J. Lichty, Cleveland: Gastro-intestinal autointoxication, nervous headaches and the uric acid diathesis are things talked about in my office by my patients, who know practically as much about them as I do. If we could get rid of some of this talk it would save time and also help the patients. I really believe that what Dr. Bloodgood mentioned with regard to the relation of the internist, the gastro-enterologist, to the surgeon is the thing which is going to help us out. There is no doubt whatever in my mind that many of the cases of so-called neurasthenia or constipation years ago were nothing more or less than surgical conditions, and yet we find now that they are not. The teeth and tonsils have just been mentioned. In addition to the teeth and tonsils, we have Jackson's membrane, retrocecal appendix and surgical conditions of the rectum, as well as the surgical appendix to account for symptoms. I want to remind you that the first attempt must not be considered as final. I have a record of three patients who said their appendixes had been removed, but the constipation persisted, and on a second operation the appendix was found there still making trouble.

Dr. Thomas Charles Martin, Washington, D. C.: I wish to call attention to three mechanical factors: the proctoscope, the patient in the knee-chest posture, and the rectum. The rectal valve is a factor in the production of organic obstipation. The hypertrophied valve becomes obstructed to a further degree, rectitis resulting, with infiltration; fixation results, establishing annular stricture, further contraction, and then the establishment of a tubular stricture of the rectum, the foundation being a normal stricture of the rectal valve resulting in symptoms of obstipation. We have the same form with a congenital condition.

Another form of obstruction is that due to angulation of the sigmoid flexure on the rectum. The proctoscope would indicate the obstruction within the rectum. The roentgenogram will only show such a condition as this when the picture is stereoscopic. We must be able to get the third dimension—the depth—shown by the use of the stereoscopic method of taking roentgenograms. One point already made must be emphasized: the importance of training the muscles on the front of the abdomen.

Dr. J. A. Rubin, Pittsburgh: In considering the part the colon plays in this question, let us for a moment examine the anatomic position this section of the alimentary canal occupies in the abdominal cavity as revealed to us by the fluoroscope. As Dr. Chapman has said, it is only by the aid of the roentgen ray that we can accurately study these parts. The following may be found:

1. A normal condition; that is, ascending colon to liver, transverse colon above umbilicus to spleen, and descending to the sigmoid. In chronic constipated cases this condition is rarely found.

2. Prolapse of the ascending colon over the cecum. The transverse colon, starting from the pelvis, passes up to the spleen and turns a sharp angle to form the beginning of the descending colon.

3. Complete prolapse of the transverse colon, which lies on the pelvic floor with the hepatic and splenic flexures at about the level of the anterior superior iliac spines. Between these extremes there are innumerable variations.

The next question anatomically is whether this colon in its abnormal position is freely movable and can be pushed into normal position or is adherent. A movable colon may functionate fairly well even when in an abnormal position, but I have not as yet found an abnormally placed colon bound down by adhesions that was able to do so.

Dr. G. Reese Satterlee, New York: There are five points which I wish to bring up—three old and two new ones. First, the education of the patient is an important thing. Patients now find that their cases have been wrongly diagnosed as neurologic when they are really intestinal. In fact, these patients are able to make a better diagnosis than some of the physicians, and send their friends to the gastro-enterologist.

The second point is that intestinal toxemia can be made more simple if classified into putrefactive cases, absorption of amins and diseased conditions of the colon.

Third, familiarity with the roentgen ray, not the technical side necessarily, but with the reading of the plates and with the fluoroscope, ought to be a part of the training of every internist and gastro-enterologist.

Fourth, a chemical blood examination is necessary in any patient on a diet, and carbohydrates should not be given to patients who have a high blood sugar.

Finally, I find that autogenous forms of vaccines are most efficient, and employing them often relieves us from the trouble of using massage and other measures, and in addition affords a chance to study the patient's anaphylaxis. It is essential to obtain the feces for culture after catharsis in order to get cultures from the cecocolon. I have secured satisfactory results in this way.

Trained Nurses in France.—It is not so many years since European physicians publishing their "Impressions of America." in their home medical journal always paid amazed tribute, if not in the first paragraph, at least on the first page, to the "American trained nurse." In France, the quarters appropriated to the nurses in the tradition-bound hospitals were not such as to invite the gentlewoman class to take up nursing as a profession. All this has now been done away with, and even before the war excellent training schools for nurses were well under way. The Assistance Publique, the centralized organization of all the charity hospitals and asylums in the Paris district, has now a fine new building as the training school for nurses to serve in the institutions caring for the sick poor. This new building is located in the maze which forms the great Salpêtrière hospital, founded in 1656 as an asylum for beggars. The new training school was inaugurated in 1907 and gives a three year course. The graduates pledge themselves to serve for three years in some of the institutions in charge of the Assistance Publique, after which they are free to take up private nursing. But those that remain with the Assistance Publique are entitled to a retiring pension. Before this hospital was founded, however, a training school for nurses recruited from the ranks of gentlewomen was founded, practically at her own expense, by Mme. A. Fould, in 1905. This school is said to be a model, and attractive in every respect. It gives a two year course, and the nurses pay about $20 a month during the first year. Other well equipped and well managed schools were founded about the same time by Miss Chaptal and others. One is now affiliated with the new Edith Cavell hospital school.

Clinical Notes, Suggestions, and New Instruments

ROENTGEN PLATE ILLUMINATOR, GIVING A PERSPECTIVE VIEW

J. J. Singer, M.D., St. Louis
Instructor in Clinical Medicine, Washington University Medical School

A roentgen-ray machine is no better than its plate when viewed in an illuminator; consequently, the better the illuminator, the better the value of the roentgen-ray machine.

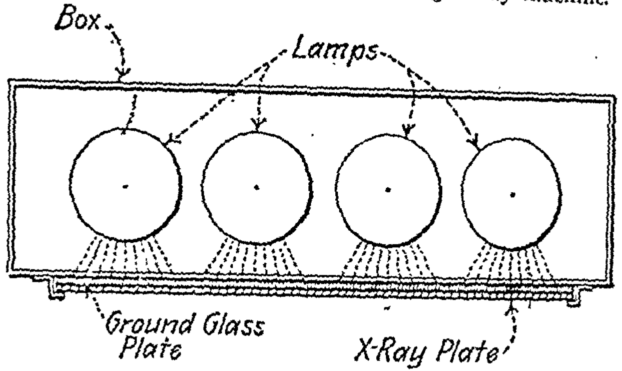


Fig. 1.—Top view of ordinary illuminating box.

Figure 1 is the top view of the ordinary illuminating box, with the lights directly back of a ground glass plate. This plate then becomes a source of light, emitting light rays of equal intensity through the roentgen plate. It will be necessary here to call attention to the fact that a roentgen plate represents in black and white the obstruction to the roentgen rays as they penetrate the body; therefore, the plate represents an uneven distribution of rays caused by the varying densities through which the roentgen rays must travel; in other words, the plate has been produced by uneven light.

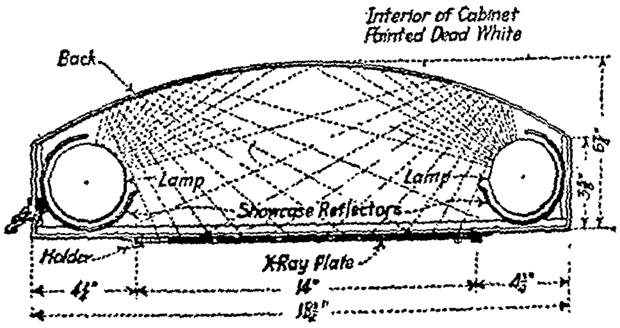


Fig. 2.—Top view of box described by the author.

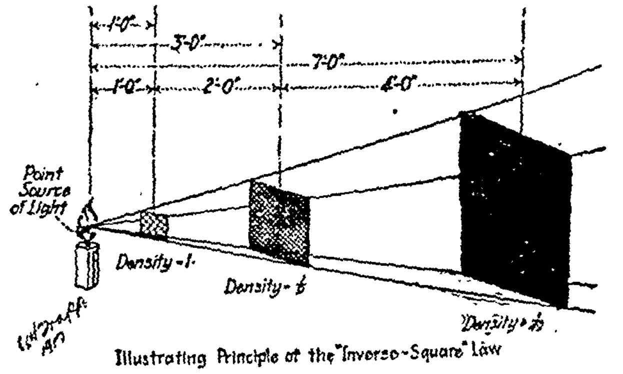


Fig. 3.—The principle of the "inverse square law."

Figure 2 is the top view of my box, in which a light is hidden on each side, the rays being reflected from a curved back, as indicated. It will be noticed that there is no ground glass plate to distribute the light evenly, the rays penetrating the plate according to the strength of the individual rays.

The center of the roentgen plate is lit up by rays of considerable length and consequently of weaker strength, and owing to this fact a weak illumination is produced in the center of the plate, which accounts for the perspective view.

In Figure 2 are given exactly dimensions best suited to my illuminator.

Figure 3 illustrates the principle of the "inverse square law." One can readily see from this drawing that the penetrating power of the light wave becomes rapidly weakened, that is, inversely as the square of the distance from the source.

Figure 4 gives a perspective view of the box, which is made of sheet tin, iron or steel, with a curved back.

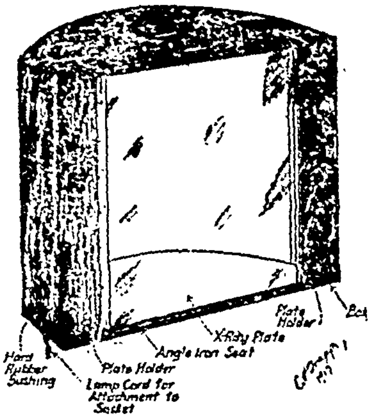


Fig. 4.—Perspective view of the box.

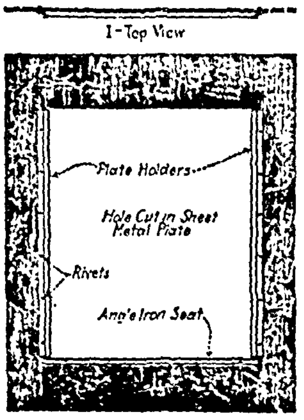


Fig. 5.—Adapter for smaller plates.

Figure 5 shows an adapter for smaller plates, the outside dimensions of the adapter being 14 by 17 inches. The inside opening can be made for any size plate desired.

The box is being used with satisfaction at the tuberculosis clinic in Washington University Medical School.

While there are other boxes being used that have indirect lighting, I do not know of any box in use that resembles the one I have described.

CONCLUSIONS

1. The box is simple, portable, light and cheap. Any mechanic is able to construct one.
2. The perspective effect of this box depends on a proper interpretation of the physics of light waves.
3. A roentgen plate should be unevenly illuminated, just as the plate was originally produced by an uneven light.

Carleton Building.

DEVICE FOR ROENTGENOGRAPHIC LOCATION OF BULLETS AND OTHER FOREIGN BODIES IN WOUNDS

Sinclair Tousey, A.M., M.D., New York

Localization by means of roentgenography presents no difficulty in the case of a finger. Here there are distinct landmarks, and it is easy to take two pictures in planes at a right angle to each other. If we employ a ray vertical to the plate at the supposed position of the foreign body, the latter is so near the plate that no correction is required for the slight lateral displacement of its shadow if not exactly at the spot where the ray is normal. In many other situations, however, two pictures at a right angle are either impracticable or inadequate, owing to the thickness of the part, the absence of very accurate bony landmarks, and often the great distance of the foreign body from the surface. The exact depth at which the foreign body is located is the difficult problem.

The methods of localization now in use fall into two groups: (1) the McKenzie-Davidson type, and (2) a method to which no distinctive name is attached. My new device is a modification of the latter type.

DETAILS OF METHOD

Apparatus Required.—1. A piece of galvanized iron netting measuring 8 by 10 inches, with meshes one-eighth inch square, the wire being of such a thickness that there are seven meshes to the linear inch. 2. A single distinctive lead marker like a small ring. 3. A set of lead numbers. 4. Facilities for moving the roentgen tube laterally a measured distance after the first exposure. 5. A stereoscopic plate holder for the exceptional cases in which two exposures should be made on separate plates.

Manipulation.—The distinctive lead marker is fastened to the skin at a point where it will be in contact with the center of the plate during the exposure. The position of this marker is indicated on the skin with an indelible pencil. The plate, covered by the wire netting, is laid on the table. The lead serial number is invariably placed over the lower external corner of the plate. The same number should be marked on the skin with an indelible pencil. Lead markers R and L (right and left) will be of occasional service. For the thigh or any part of the head or trunk, the anticathode is placed at a distance of 21 inches from the plate; it is displaced laterally 3 inches after the first exposure. For the forearm or leg the distance from the anticathode to the plate is 14 inches and the lateral displacement 2 inches. Each subdivision of the wire mesh (one-seventh inch) that the image of the foreign body is displaced corresponds to one-half inch distance from the plate to the foreign body when the exposures were made. If this distance is considerable, one must bear in mind the fact that the foreign body is located in a direction from one image to the corresponding position of the anticathode, not necessarily in a direction vertical to the plate. Each exposure should be of the same intensity and duration as for a single picture whether the exposures are made on the same or on separate plates.

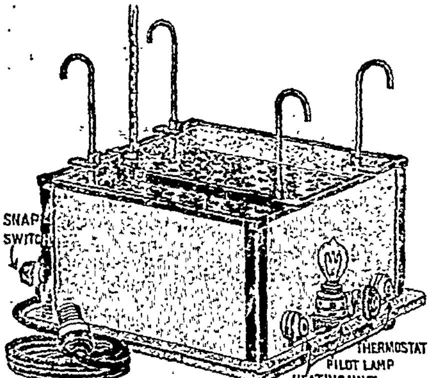
The advantage of this method lies in the small space required for the apparatus and in the absence of any mathematical calculation.

850 Seventh Avenue.

AN ELECTRICALLY HEATED CONSTANT TEMPERATURE WATER-BATH FOR SEROLOGIC WORK *

Oscar T. Schultz, M.D., Chicago

For serologic work a constant temperature water-bath is a necessity, and a bath heated and controlled by electricity has manifest advantages over any other kind. While there are several electric water-baths on the market, they are not entirely satisfactory, either because the size is excessive in comparison with the available working space, or because the regulating and heating attachments are cumbersome and in the way. A bath made according to our specifications appears to overcome these objections. Modifications as to size, but which will still retain the more important features of the bath, may suggest themselves.



CHICAGO SURGICAL & ELECTRICAL CO.

Fig. 1.—Water-bath with two test tube racks.

The bath illustrated in Figure 1 was designed to carry two metal test tube racks, each measuring 8¾ by 4 inches and 2¾ inches in height, and each with a capacity of forty-eight tubes of the 3 by ⅜ inch size, as shown in Figure 2. These racks are suspended by adjustable supports from the sides of the bath in such a way that the tubes can be submerged to any desired depth. To overcome the waste of space which is one of the features of a circular bath, this bath is made square in shape, the inside dimensions being 9 by 9 inches and 5 inches in depth. The bath is made of No. 19 sheet copper, the inner surface of which is tinned. Outside of this is a layer of hair encased in building paper, and this in turn is covered by transite (a mixture of asbestos and Portland cement) three-sixteenths inch thick. With this insulation there is no appreciable loss of heat from the sides or bottom of the bath. The total thickness of the wall is five-sixteenths inch.

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* From the Nelson Morris Memorial Institute for Medical Research of the Michael Reese Hospital.

The bath is heated by two replaceable units placed in copper tubes 1 inch in diameter at the bottom of the bath, the tubes being entirely surrounded by water. Regulation of the temperature is effected by a removable, pencil type, bimetallic thermostat, also placed in a copper tube one-half inch in diameter at the bottom of the bath between the heating units. The latter are so wound and connected that one half of each unit, controlled by a single snap switch, may be thrown out of the circuit as soon as the desired temperature is reached. The remaining half of each unit, which is entirely independent of that portion of the system for rapid heating, is controlled by the thermostat, and serves to maintain the uniform temperature desired.

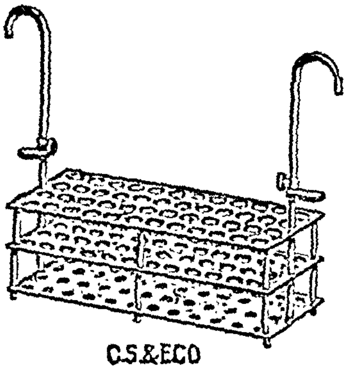

Fig. 2.—Test tube rack.

The advantages of the bath described are neatness of appearance, compactness, and absence of bunglesome attachments.

A CASE OF GAS EMBOLISM

Edward von Adelung, M.S., M.D., Oakland, Calif.

A man, with advanced pulmonary tuberculosis of the lungs, and extensive pleuritic adhesions, was given nitrogen injections in an attempt to induce pneumothorax.

The treatment was begun at 3:15. The manometer failed to register oscillations so necessary for safety. This fact, however, was unfortunately disregarded, and from 15 to 20 c.c. of gas were allowed to flow slowly into the left thorax. In two or three minutes the patient complained of "cramp" in the right leg. He was turned over, on the supposition that the "cramp" was due to position, strain or compression. The operator's attention was then distracted for a moment, and when he again looked at the patient he noticed that the head rotated to the right, that the right arm and leg were paralyzed, and that the patient was unconscious. The eyes were turned to the right, the skin was pale, and the veins stood out prominently over the right shoulder and arm. Gas embolism was immediately recognized, and the following treatment was begun, after discontinuance of the nitrogen inflation:

A hypodermic or camphorated oil (0.2 gm. of camphor) and a hypodermic of 2 c.c. of whisky were given. Then 10 c.c. of blood were withdrawn by syringe from the right arm. Hot wet cloths were applied to the head, chest and abdomen.

The pulse was small, the blood pressure 100, and the respiration and pulse regular. There was slight cyanosis of the ears and fingers. The knee tendon reflex was active. Presently the eyes began to roll. The pupils were moderately dilated.

After forty minutes the patient was able to move his right leg and arm, and he gradually improved. In forty minutes after the onset he was able to answer questions, but he was still dazed. He did not complain of pain. Fifty minutes after the onset, he was much improved, regaining control of the right arm. At 4:10 he was smiling and laughing, but was not feeling natural, and he had slight numbness in his right arm.

The patient was put in a hospital bed for observation, and the next morning the numbness had disappeared. As he felt quite well, he went home.

This case is placed on record to illustrate the need of guidance by the manometer in the induction of pneumothorax. As the notes were dictated during the time of the accident, they are accurate as far as they go.

1206 Broadway.

Military Medicine and Surgery

THE MILITARY ORTHOPEDIC RECONSTRUCTION HOSPITAL

LEO MAYER,* A.M., M.D.
NEW YORK

In England, under the direction of Sir Robert Jones, and in Canada, through the Hospitals Commission, organized effort is being made to reclaim the crippled soldier. In Germany, a similar movement was initiated by Professor Biesalski, secretary of the Organization for the Care of Cripples and of the Orthopedists' Association. In France, a layman, the mayor of Lyons, Monsieur Herriot, laid the foundation by establishing a school for crippled soldiers. In each of the belligerent countries, the necessity for intelligent care of those crippled by the war has been appreciated, and means, more or less adequate, have been found to meet it.

I wish to emphasize the importance of what is called the orthopedic reconstruction hospital. Of the soldiers unfit for further military service—the blind, those suffering from internal diseases, the psychopathic and the crippled—the first three groups can be cared for by an extension of the existing hospitals and institutions. For the crippled soldier, however, no institution exists that can properly care for his particular need, since he not merely requires medical treatment, but must frequently be equipped with an artificial leg or a brace, instructed in its use, and shown how to earn his livelihood despite the physical disadvantage under which he labors.

The injuries which tend to cripple may be divided into six classes:

1. Amputations, of which we can unfortunately expect a large number since, despite modern conservatism in surgery, the high explosives used in the present war, all too frequently produce a type of wound that necessitates sacrifice of the limb.
2. Bone injuries, malunited and ununited fractures, and cases of chronic osteomyelitis due to sequestrums or foreign bodies embedded in the bone.
3. Joint lesions. These may be contractures, due to long continued immobilization or to injury in the neighborhood of the joint, bony ankyloses, due to extensive obstruction of the joint, or painful joints due to inequality of the articular surfaces, foreign bodies or to disease.
4. Nerve injuries, either complete division of the nerve, or embedding in scar tissue.
5. Division of the tendons.
6. Static deformities of all types.

Characteristic of these six groups is the lengthy postoperative treatment required in almost all instances. For instance, to discharge a patient with a musculospiral paralysis from a hospital immediately after the operative wound has healed is to leave the task half finished. The patient must be given effective aftertreatment—massage, electricity, and the proper splint—if the operation is to result in a return of function. Or take the case of a patient whose flexor tendons in the palm have been divided by a bullet. The operation is almost certain to be a failure if adequate postoperative exercises are not carried out under the eyes of a competent physician. Even those who have suffered amputation are not ready for an artificial limb immediately after the wound has healed, but the stump must be hardened and must reach a constant form before the proper prosthesis can be applied. Learning to use the artificial limb also requires time, since, particularly in the case of an artificial hand, its use is a fine art. To give a patient an artificial hand, with instructions to go ahead and use it, is like presenting a man with a violin and telling him to go ahead and play it.

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* From September, 1914, until February, 1917, orthopedic surgeon to the Red Cross Base Hospital "Am Urban," Berlin, Germany.

Thus from the very nature of the injuries, the orthopedic reconstruction hospital has to include departments which in times of peace are not thought of in connection with medical institutions. The operating room and the ward must be supplemented by the workshop, the agricultural school and the business college. The vocational department serves numerous important purposes. In the first place, it affords the most rational and effective means of exercising joints and muscles, stiffened and weakened by long continued disuse. The Zander exercises, which have hitherto been in vogue, are exceedingly irksome for the patient and uninteresting to the physician. To the soldier, naturally depressed by a long drawn out recovery from a severe wound, the therapy should not only be directed toward physical recuperation, but should also give a psychic stimulus. Few things appeal to a man more than manual work in the carpenter shop or in the smithy, and the interest in the product of his labor will frequently enable him to perform movements that would otherwise be impossible. Thus, for instance, I recall in particular the case of a 6-foot petty officer whose right shoulder had been stiffened by an extensive periarticular gunshot wound. After the wound had healed, he was exceedingly depressed because he maintained he could no longer continue at his trade. After three weeks in the carpenter shop, under careful medical supervision, beginning with light work, such as varnishing and gradually progressing to the heavier —hammering, sawing, etc.—he had regained at least 75 per cent. of the normal movement of the shoulder and, still better, his psychic condition had become normal. He was now convinced that he could remain a carpenter.

In other instances the workshops are particularly important in training those who have undergone amputation. The first reaction of a man who has lost a limb is the sensation of hopeless crippledom. He is usually convinced that he will have to retire and live on his pension or at best eke out a living by a porter's or janitor's job. My experience, however, has been that practically every such patient can continue in his own vocation or in one allied to it. Amputation of the hand does not prevent a man from continuing to be a carpenter, smith, brace-maker, bookbinder or farmer, since with practice the lower arm stump acquires sufficient dexterity to replace the amputated hand. In the crippled children's hospital, with which I was associated, we had a 16-year-old apprentice who, despite amputation of the right hand, had become an expert brace-maker. This lad acted as instructor to soldiers with a similar type of amputation, and within two months taught them to work with a skill and enthusiasm equal to his own. When the amputation has occurred above the elbow, the problem is much more difficult. Here recourse must be had to an artificial limb. Many men can, with the aid of a suitable prosthesis, such, for instance, as the Siemens-Schukert arm, continue at the previous occupation. If the amputation has occurred near the shoulder, or if the arm has been disarticulated, it is, however, extremely difficult to handle the usual tools of carpenter, smith or cobbler. Then the patient must be trained in an allied branch. The carpenter, for instance, may become a foreman or he can learn to be a piano polisher, since in this trade practically all the work is done with a sweeping motion of one arm. Those who have suffered amputation of a leg require comparatively short training before they realize their fitness to continue in their old occupation. For them a few ingenious devices, such as the cobbler's bench with mechanical device to hold the shoe in place with a strap, are of great advantage. To all patients who have been equipped with artificial limb or with brace, the workshop affords ample opportunity to test the efficiency of the apparatus.

To the hospital the workshops are a distinct economy and a convenience. No need for plumbers, glaziers, bookbinders, printers or carpenters, when all this work can be done in the shops conducted by the hospital itself. Particularly advantageous is the brace-maker's shop. Even in times of peace the number of expert brace-makers hardly suffices for the need of the orthopedist. In times of war, when the number of maimed multiplies with tremendous rapidity and when the number of brace-makers diminishes because of conscription, it is practically impossible to supply the needs of crippled soldiers unless adequate provision is made for training men in this complicated handicraft. With two or three skilled men in charge of the shop, the soldiers with a mechanical turn can be taught one branch of the craft, and those with experience in leather work—saddlers and cobblers—can be taught another, so that in time skilled workers can be supplied.

As a necessary adjunct to the vocational department is the employment bureau. It is manifestly unfair to discharge a crippled man who has risked his life in the service of his country without helping him to secure a position of maximum advantage to himself and to the community in whose service he has been crippled. Here is opportunity for the hospital to cooperate with the state employment agencies.

It is distinctly advantageous to include the vocational department in the hospital instead of establishing separate institutions for it. Time is gained, the method is more economical and, above all, vocational work can be begun at the psychologic moment. The treatment of gunshot wounds of the extremities involves in almost all cases a lengthy after-treatment. During this time, while the patient is under medical supervision, vocational work should be begun. The physician, to whom the patient naturally looks as guide because he, far more than any other, has the patient's confidence, helps overcome the inertia which the crippled are almost certain to feel. Having workshop and hospital ward in the same institution helps build up an *esprit de corps* which it is difficult to secure in any other way. Of course, a necessary condition to the success of such a hospital is the character of the medical director. He must not only be a well trained orthopedic surgeon, but he must have a social conscience and be interested in the individual needs of each one of his patients.

The vocational work should include not only shops but also courses in farming and dairying, business courses, culture courses, training for civil service examination, etc. For every man, no matter what his previous calling has been, the hospital should offer some means of instruction that will enable him, despite the physical disadvantage he has suffered, to leave the hospital a more productive member of the community than at the time of his enlistment.

It would be unwise and unjust to leave work of such importance to local control or to private initiative. The national government itself in its war program must include not only the equipment of its armies and its hospitals for treating wounds in the acute stage, but also the adequate medical, vocational and social care of the crippled soldier. Under the direction of Major E. G. Brackett, this work has already been begun. The movement deserves the hearty support both of the medical profession and of the entire community.

41 West Eighty-Third Street.

DIGITALIS THERAPY AND THE PRESENT SHORTAGE IN DRUGS

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NEW YORK

The following brief review of the present status of the materia medica of the digitalis group and its relation to therapeutics has been prepared at the request of Prof. Julius Stieglitz, chairman of a committee on synthetic drugs, appointed by the National Research Council, because of the present want of many preparations of this group that have come into more or less widespread use.

All of the members of this group, including many crude drugs and their galenic preparations, as well as glucosidal active principles, exert a qualitatively similar therapeutic action on the heart when they are brought into the blood stream; but the various members of the group vary enormously in their activity and in the rate of their absorption from the alimentary tract.

These differences in behavior of the different members of the group have resulted in the development of faith in one or the other of the numerous preparations and specialties, and a corresponding distrust of all others on the part of those physicians who have not appreciated the importance of dosage and the several methods of administration best suited to the individual preparation in securing the results aimed at. Those who are thus left without the preparation to which they are accustomed feel the want keenly, and the present discussion is designed to point the way to relief from these conditions.

Digitalis, digitoxin, strophanthus, strophanthin and ouabain exert the same kind of action on the heart directly, and on the circulation indirectly, as previously stated in different words; but the action of digitalis and its most active principle, digitoxin, is far more lasting than that of the others. It is necessary to caution the reader against confusing "actions" and "effects" in this connection.

When an attack of acute cardiac dilatation is relieved by any member of the group whatsoever, the effect is permanent, provided the cause of the failure is not continuously active; but in various forms of chronic cardiac disease which require more or less continuous digitalis medication, the duration of effect and the duration of action are nearly the same. In such cases the duration of action and effect of digitalis and digitoxin are far greater than those of the other members of the group, in which case the difference is overcome by increased frequency of dosage, or, what amounts to the same thing, a relatively—not actually—larger dose of equal frequency.

Digipuratum is one of those specialties that have come into wide use partly through their intrinsic value, but mainly because of a most persistent and effective campaign of adroit advertising, and it may be taken as an example of the specialties on which all too many clinicians have come to fix their sole reliance in digitalis therapy. It is certainly true, however, that while digipuratum, like many other specialties, exerts a satisfactory cardiac action, it is in no way essential, since exactly the same actions can be induced by official members of the group in the hands of any one who masters the really simple technic of administration.

In all cases requiring digitalis therapy, digitalis itself in the form of the powder, the tincture, fluidextract, extract or infusion may be used orally with the sole exception of those relatively rare cases in which immediate relief is imperative, and which require intravenous or intramuscular administration. In such cases the typical digitalis action can be induced immediately by the intramuscular or intravenous injection of strophanthin or crystalline ouabain (so-called crystalline strophanthin, not true crystalline Kombé strophanthin, which is not commercially available).

It is necessary to call attention again to the difference between an immediate action and immediate effect, because it has long been taught, without a particle of real evidence, that the action of digitalis cannot be induced promptly. The whole range of digitalis action up to the maximum, that is, cardiac stoppage, can be induced within from five to fifteen seconds by the intravenous injection of digitalis tincture, deprived of its alcohol, or digitoxin. This simple experiment disposes forever of the mischievous claim that digitalis action is slow. The *effect* of therapeutic doses is *gradually* induced; the *action* is *immediate*. A bullet fired through the heart *acts* instantaneously; the *effect* is a fatal hemorrhage, the rapidity of which depends largely on the size of the wound. With suitable dosage, digitalis exerts its action in much less time than was formerly believed to be possible.

The action of an intravenous dose of strophanthin or ouabain is not so lasting as is that of a corresponding dose of digipuratum, but it lasts until it can be supplemented by the oral administration of digitalis.

Another fallacy that dies hard is that digitalis and digitoxin act on the vessels and cause high blood pressure, and that they are therefore contraindicated in cases in which the blood pressure is already high. This has been the greatest stumbling block in the way of the use of digitalis, next to that of regulation of dosage. Every one of the digitalis bodies acts on the vessels when enormous doses are passed directly into them, but this action is never induced by therapeutic doses. The contrary belief rests on the observation of the effects of massive doses in animal experimentation, and is not supported by any careful clinical observations or experiments with therapeutic doses.

Among the less important fallacies that have severally contributed to the distrust of digitalis and have been utilized by manufacturers to their own advantage, the following may be mentioned briefly: All drugs, preparations and active principles of this group without exception cause nausea and vomiting in overdoses through their action on the vomiting center in the medulla—not through any direct action on the stomach; hence it cannot be avoided by any mere change in the mode of administration, or mere choice of preparation, but only by proper regulation of the dosage—and by dosage I mean the amount which actually enters the blood stream and which alone can act on the heart.

None of the drugs of this group are actively diuretic through any direct action on the kidneys. They induce diuresis solely through an improved circulation. That does not mean either a higher or a lower blood pressure in every case; it means a more effective circulation, one better adapted to the needs of the individual patient. This sometimes means an increase, sometimes a decrease, in pressure.

All digitalis galenicals, tincture, infusion, extract and fluidextract, exert the same kind of action, because they all contain all of the active principles of the drug.

All digitalis bodies without exception have the disadvantage of being absorbed somewhat slowly and irregularly from the alimentary tract. Digitalis tincture, as well as the infusion and fluidextract, are absorbed *fairly* promptly; strophanthus and strophanthin, ouabain, convallaria preparations, apocynum preparations, and wahoo are absorbed very irregularly. This is of prime importance, because it requires the administration of large doses of these drugs in order to insure the therapeutic effects; but rapid absorption occurs occasionally under conditions that are not understood, and severe, or even fatal, poisoning may result. The latter drugs should never be used for oral administration.

There is no difficulty in getting standardized digitalis preparations, and these do not deteriorate rapidly. Slight deterioration is not important, because the drug must always be given until a definite action is induced, and this varies with every patient; since there is no fixed dose that is applicable to different patients.

Tincture of digitalis contains only traces of fat, and that is no more disturbing to the stomach than an equal amount of other fixed oils or fats.

Granted that a correct diagnosis has been made, digitalis therapy becomes largely a matter of correct dosage, including the proper method of administration, which is nearly always oral. It is beyond the scope of this paper to consider dosage and methods of administration in detail, the present purpose being to point out to the clinician the resources that he has at his command; but he will find valuable suggestions in the following papers:

"A Clinical Study of Crystalline Strophanthin," by Harold C. Bailey.[1] In this paper the author reports most careful clinical observations with crystalline ouabain, formerly called crystalline strophanthin.

"The Toxic Actions of Digitalis on the Heart," by the same author.[2] This is an excellent study of the toxic actions of digitalis that frequently escape attention.

"Digitalis Dosage," by Cary Eggleston.[3] This is perhaps the best recent study of the method of administering digitalis whereby prompt effects are induced after oral administration.

Fraenkel and others have published numerous papers dealing with the intravenous administration of strophanthin.

I am well aware that many readers will be inclined to deny many statements made in this brief article, but I can only assert that they are based on careful clinical and experimental observations and are not contradicted by any recent careful studies.

[This report was submitted in manuscript to Dr. Joseph L. Miller, Major, M. R. C., U. S. Army, Camp Dodge, Iowa, and Dr. Miller writes: "I agree fully with all the statements made by Dr. Hatcher. He has expressed exactly my views on this subject."

Dr. Richard Weil, New York, writes: "I have not only been familiar for some years with the work done in Dr. Hatcher's laboratory on the digitalis drugs, but have made practical application of much of it in my service in Mount Sinai Hospital with gratifying results. I can therefore express myself as in full agreement with the suggestions made in the present paper."—Ed.]

New and Nonofficial Remedies

The following additional articles have been accepted as conforming to the rules of the Council on Pharmacy and Chemistry of the American Medical Association for admission to New and Nonofficial Remedies. A copy of the rules on which the Council bases its action will be sent on application. W. A. Puckner, Secretary.

PARAFFIN FOR FILMS (SURGICAL PARAFFIN, PLASTIC PARAFFIN)

Paraffin intended for application to burns, etc., should be solid at body temperature, but be more ductile and pliable than the official paraffin (Paraffinum, U. S. P.) and be liquid at or below 50 C. A thin film when prepared and tested as described below should be pliable at or below 28 C. and ductile at or below 31 C. At body temperature (38 C.) it should be pliable, and adhere to, but permitting ready detachment from the skin.

Actions and Uses.—Paraffin for films acts mechanically. When applied to burns and denuded surfaces, it provides an air-excluding dressing which relieves pain, forming a soft, pliable splint-like covering to the wounded surfaces, keeps the parts at a relatively uniform temperature, immobilizes the epidermal tissue, and may aid in the formation of new tissue by acting as a scaffolding for newly formed cells.

Paraffin for films is used mainly in the treatment of burns. It is said to be useful in the treatment of "frostbite," "chilblains," and for covering denuded surfaces. It is also employed to prepare "paraffin-covered bandages" and to seal gauze dressings.

Dosage.—In the paraffin treatment of burns the wound, after preparatory treatment, is dried and a thin coating of either liquid petrolatum or melted paraffin for films (at a temperature of about 53 C.) is applied by means of an atomizer or brush. This is followed by the application of a thin layer of cotton and then another layer of the melted paraffin; the dressing is finished by covering with cotton and bandaging.

The melting point of paraffin for films is determined by the method of the U. S. Pharmacopoeia, IX, p. 596.

The pliability and ductility of paraffin is determined as follows: A little of the melted substance is poured on water having a temperature of about 40 C. so as to form a number of separate films. The temperature of the bath is then gradually lowered by the addition of cold water to determine the pliability and ductility. (Pliability test). The film while immersed in water is doubled on itself and the temperature of the water observed at which the film breaks sharply on *one* fold. (Ductility test.) The film is stretched while under water and the temperature of the water noted at which the film breaks sharply and evenly.

A small surface of the forearm is painted with melted paraffin, covered with a thin layer of cotton, another coat of paraffin painted on the cotton, and then dressed with cotton and bandage. After one hour, the film should remain attached to the skin, showing it is adherent, but be easily removable.

STANOLIND SURGICAL WAX—A brand of paraffin for films, melting at 47 C., being pliable at or below 25 C. and ductile at or below 29 C.

Actions, Uses and Dosage.—See under general article on Paraffin for Films.

Manufactured by the Standard Oil Company of Indiana, Chicago.

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[1] Jour. Pharmacol. and Exper. Therap., 1909, 1, 359.

[2] Am. Jour. Med. Sc., 1911, p. 1.

[3] Arch. Int. Med., July, 1915, p. 1.

THE JOURNAL OF THE AMERICAN MEDICAL ASSOCIATION

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SATURDAY, NOVEMBER 3, 1917

VITAMINS AND TUMOR GROWTH

Tumors in general and cancers in particular are tissues growing under special conditions. A comparison between the laws determining tumor and tissue growth will determine our knowledge of the physiology of tumors as well as of tissues. There exist similarities and analogies in the behavior of both, and there are differences either real or due to a gap in our knowledge. The differences will suggest new problems. These were the statements made by Leo Loeb of St. Louis at a symposium on cancer before the Section of Experimental Medicine of the American Association for the Advancement of Science in New York, last December.[1] It has come to be recognized in recent years that normal growth is dependent on a number of nutritive factors, the importance of which is only beginning to be understood. Thus for the purpose of growth a diet may be deficient with respect to both the quantity and the quality of its protein, to its inorganic salts, or to its total calorific content; but beside an adequate quota of these components, there is recognized the necessity of certain as yet unidentified substances now popularly known as vitamins.

So far as known at present, the vitamins which are essential to growth, and without which life cannot even be maintained over a reasonably long period, are furnished to the organism with the diet. They do not seem to be produced de novo in the animal body. Benedict and Rahe[2] have accordingly investigated the question whether tumor cells, like somatic cells, are dependent on a supply of vitamins from outside sources, or whether tumor cells possess a power of synthesis of vitamins. If the latter supposition should be correct, then, the investigators state, we should have a fundamental difference between tumor and body cells, a difference as great in this respect as between plant and animal cells. The former of these synthesize vitamins; the latter have never been shown to do so. If tumor cells possess the power of vitamin synthesis, then they have indeed a unique and tremendous advantage over ordinary tissue cells.

Obviously, as Benedict and Rahe further remark, this question is an important one worthy of detailed study. The relation of diet to the growth of tumors has frequently been investigated in the past. The novelty in these new researches consisted in comparing the growth of the same strain of tumor in experimental animals, in the diet of which, in one group, no more vitamin was supplied than was necessary barely to maintain the animals without growth, whereas, in the other group, the ration was sufficiently rich in vitamin to facilitate liberal growth. The authors argue that, if on the diet deficient in vitamins the animal plus the tumor increases in weight, approximately in accordance with the weight of the tumor, it is obvious that the latter tissue is independent of an outside source of vitamin so far as its growth is concerned, since a quantity of vitamins is supplied in the food that will suffice for the maintenance only of the animal's original tissues. If, on the contrary, the tumor grows, but the total weight of the animal plus the tumor remains unaltered, then we are justified in concluding that the tumor is dependent on vitamin from outside sources, and that, through increased avidity, it is able to appropriate the vitamins of the host's tissues to its own uses, so that a given quantity of the host's tissue is practically transformed into tumor tissue. In this event there would be no appreciable change in weight in the animal, though the tumor might conceivably grow to a considerable size before the death of the host. Another possibility would be that during the growth of the tumor, the weight of the animal would increase more rapidly than could be accounted for by the growth of the tumor. In this instance we should have to assume that the tumor produced a growth-promoting substance that escaped into the circulation and affected the growth of the host.

The animals on both groups of diets—those comparatively deficient in vitamins as well as those richer in these substances—readily developed tumors after appropriate inoculations. But, on the vitamin-restricted diets, the total weight of the animals failed to exhibit any increase, despite the development of tumors equivalent to about one third of the total body weight. The very rapid growth of tumors under conditions that completely prevent the growth of body tissue indicates the remarkable avidity that tumor cells may show. Benedict and Rahe tentatively assume that tumors, like the somatic cells, are thus dependent on growth stimulants from outside sources, either from the food or from the tissues of the host. Their experiments show, furthermore, that even a very rapidly growing experimental neoplasm does not liberate into the circulation any substance that may act as a stimulant to body growth in the absence of growth-promoting vitamins in the diet.

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1. Loeb, Leo: Tissue Growth and Tumor Growth, Jour. Cancer Research, 1917, 2, 135.

2. Benedict, S. R., and Rahe, A. H.: Studies in the Influence of Various Factors in Nutrition on the Growth of Experimental Tumors, I, Jour. Cancer Research, 1917, 2, 159.

THE HUNGRY INFANT

The problems of alimentation in infancy have been greatly delayed in their solution because of a lack of objective signs and accurately established facts on which rational procedure can be based. In the adult, the subjective symptoms can be consulted; and the progress in the expert analysis of the physiologic and chemical functions has reached a stage of considerable precision. Hunger and appetite, the responses of the digestive glands to various types of stimuli, the movements of the successive segments of the gastro-enteric tract, and other factors are now understood with considerable accuracy.

It requires little argument to indicate the difficulties that beset the student of the comparable questions in the case of the infant, in which the personal factor of cooperative intelligence is lacking and the technical hindrances to experimentation or instrumentation are obviously great. Yet certain items of information are plainly needed in the routine of infant feeding. It is important, for example, to have a defensible basis on which to determine the periods between the successive administration of food, or to know whether difficulties in nursing have an alimentary background, so to speak. Two years ago, Carlson and Ginsburg[1] made a noteworthy contribution to the analysis of the hunger sense in the new-born by actually demonstrating the hunger contractions of the stomach in these infants. It was thus shown that, as in adults, contractions of the empty stomach cause the hunger sensation, but occur with even greater intensity in infants. The "pangs of hunger" are associated with the rhythmic contractions of the stomach wall. As one writer has expressed it, impulses set up by these contractions and carried to the higher centers are, in the normal consciousness, recognized as hunger. These impulses produce secondary effects, such as restlessness and irritability. However, he adds, the prime factor in the desire for food depends not on the basis of distress due to the contractions of a hollow viscus, but on "the memory processes of past experience with palatable foods." This psychic factor is appetite, and its absolute distinction from the physical factor, hunger, must be kept in mind.

The studies of Carlson[2] and his co-workers have been corroborated in the Department of Pediatrics at the University of Minnesota by Taylor,[3] who has further shown that still greater hunger contractions occur in the stomachs of the prematurely born. In the adult, in general, the taste of salt, sour, bitter or sweet, or the chewing of agreeable, disagreeable or indifferent substances all produce temporary inhibition of the gastric contractions. The chewing of palatable foods by the adult when hungry causes an inhibition, made more lasting by the flow of appetite juice in the stomach. Local stimulation in the mouth is almost invariably inhibitory. Food in the stomach likewise stops the hunger contractions, this form of inhibition being less transitory than that from the mouth. Taylor[3] has now found that inhibition of the hunger contractions from the mouth does not occur in young infants. Inhibition of the hunger contractions from the mouth in older infants is present only as the result of stimuli that the babe has learned to associate with food. It does not occur with substances which produce equally strong sensory impressions but are not considered by the infant as food. Inhibition from the mouth is psychic in character. On the other hand, reflex inhibition from the presence of food in the stomach is present in infants of all ages, though it may be developed only partially in young infants.

There is a widespread belief that the crying infant is hungry. Taylor has expressed the view that hunger is not an immediate cause of crying in a normally developing breast-fed baby, so long as the periods between feedings are not unduly protracted. In his own words, neither the hunger contractions themselves nor the increased irritability due to them are ordinarily immediate factors in the production of crying. Young infants sleep throughout strong contraction periods. Older infants often do the same, and are frequently quiet even from twelve to sixteen hours after a feeding. Mental factors produce crying at a very early age. And the fact that crying ceases when food or water is administered may mean only that the infant's attention is diverted to the performance of a pleasurable act.

Some time ago, Ginsburg, Tumpowsky and Carlson[4] reported the average time between nursing and the appearance of hunger contractions to be two hours and forty minutes, with a minimum of two hours and twenty minutes, and a maximum of three hours and thirty minutes. Under like conditions, Taylor has observed that the average time required for the development of hunger in healthy infants gaining in weight and receiving a known sufficient amount of food is, in premature infants under 1 month, one hour and forty minutes, with a maximum of two hours and twenty minutes and a minimum of forty minutes; in full term infants under 2 weeks, two hours and fifty minutes, with a maximum of four hours and a minimum of two hours; and in infants from 2 weeks to 4 months, three hours and forty minutes, with a maximum of four hours and thirty-five minutes and a minimum of three hours and twelve minutes.

One might be inclined to utilize these data in determining the ideal interval that should elapse between feedings. It appears, however, that it is only in normal babies, receiving well tolerated food in sufficient quantity, that the development of hunger waits on the emptying of the stomach. In the case of infants with chronic disturbances of alimentation, hunger contractions may occur long before the stomach is emptied. Consequently, Taylor remarks, their presence is not in itself an indication that the stomach is ready for food. Another current view that has been upset by further observations of Taylor[5] concerns the response of the secretory apparatus of the stomach to the process of feeding. Contrary to what has been found in adults, there is no appetite or psychic secretion of gastric juice in the young infant.

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[1] Carlson, A. J., and Ginsburg, H.: Contributions to the Physiology of the Stomach, XXIV, The Tonus and Hunger Contractions of the Stomach of the New-Born, Am. Jour. Physiol., 1915, 38, 29.

[2] Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, 1916. The Stomach in Hunger, editorial, The Journal A. M. A., Feb. 8, 1913, p. 448; The Gastric Movement in Hunger, Sept. 27, 1913, p. 1044; The Call of the Empty Stomach, Oct. 4, 1913, p. 1300; New Facts About Hunger, July 11, 1914, p. 169; Stomach Bitters, Jan. 2, 1915, p. 58.

[3] Taylor, Rood: Hunger in the Infant, Am. Jour. Dis. Child., October, 1917, p. 233.

[4] Ginsburg, H., Tumpowsky, I., and Carlson, A. J.: The Onset of Hunger in Infants after Feeding, The Journal A. M. A., May 29, 1915, p. 1822.

THE VITAL CAPACITY OF THE LUNGS—ITS SIGNIFICANCE IN DISEASE

The vital capacity of the lungs is the expression applied to the volume of air that can be expired after the deepest possible inspiration. Among the factors affecting the vital capacity are the age, sex, height, weight, the size and flexibility of the thorax, and the state of physical training of the individual. Recent measurements made at the medical clinic of the Peter Bent Brigham Hospital in Boston furnish the following standards for the vital capacity of the lungs of normal men: for men over 6 feet tall, 5,100 c.c.; between 5 feet 8½ inches and 6 feet, 4,800 c.c.; between 5 feet 3 inches and 5 feet 8½ inches, 4,000 c.c. In women of the same heights it is about one fifth less. When compared with these standards, the vital capacity of healthy persons very rarely falls below 90 per cent. of the normal standard, although it may rise considerably above the normal. According to the Boston data, the most important factor inducing extreme variation in the vital capacity of normal subjects of similar size appears to be athletic training. The average vital capacity of ten highly trained athletes was 120 per cent. of the normal standards. The increase of vital capacity had persisted in some of them for several years after strenuous exercise had been last indulged in.

Although this feature of respiration has been measured in literally thousands of persons, the determination of its magnitude has found a limited application at best in relation to pathologic conditions. Peabody and Wentworth[6] at the Harvard Medical School have found, in a study of a variety of diseases, that the tendency to dyspnea corresponds closely to a decrease in the vital capacity of the lungs. This is not true of the anemias; and in diseases in which dyspnea is not a prominent symptom the vital capacity is usually within the normal limits, although general weakness and old age may cause a slight decrease. Patients with heart disease afford the typical illustrations of the close relation between the vital capacity and dyspnea. Peabody points out that the essential difference between normal subjects and patients with heart disease with regard to the production of dyspnea is not that cardiac patients are necessarily more sensitive to any given stimulus to the respiratory center, but that they cannot stand so *great a stimulus.* Cardiac patients become dyspneic easier than normal subjects because they are unable *to meet the rising stimulus to respiration* with an adequate increase of pulmonary ventilation. The limitation of the depth of breathing is thus an important factor in the production of dyspnea in patients with heart disease.

Peabody and Wentworth have found further that compensated patients, who do not complain of dyspnea on exertion, have a normal vital capacity. Patients with more serious disease, in whom dyspnea is a prominent symptom, have a low vital capacity, and the decrease in vital capacity runs parallel to the clinical condition. Changes in the clinical condition are usually associated with changes in the vital capacity. As a patient improves, his vital capacity tends to rise, and as he becomes worse, it tends to fall.

Among the obvious causes of decrease in vital capacity are pleural effusion, emphysema and ascites. The distention of the pulmonary vessels, owing to an insufficiency of the heart, has also been suggested. If this is true, then, as Peabody and Wentworth propose, the determination of the vital capacity of the lungs may be of value as an early sign of cardiac weakness. Finally, in giving quantitative information as to the tendency to dyspnea, such estimations have a practical value and incidentally give some indication of the actual clinical condition and reserve power of the patient.

FACTORS AFFECTING THE GERM CONTENT OF MILK

As we have stated before, the modern demand for sanitary milk of a higher grade inevitably involves an increased expenditure in labor and equipment appropriate to bring about the desired results. In the interests of economy, it is imperative, therefore, to provide dependable information regarding those factors which are especially responsible for the supply of satisfactorily clean and wholesome milk. Obviously, it would be an extravagant folly to incur unnecessary expense in connection with items that cannot at best contribute anything to the improvement of the milk supply; whereas every effort must be made to safeguard a food as important as is milk, at every step in its production, whenever the possibility of deterioration unquestionably exists.

The quality of milk from the sanitary standpoint is at present judged essentially on the basis of its chemical composition and its germ content. The latter in particular has come to be regarded as an index of cleanliness and wholesomeness. The limit of bacterial contamination permissible has been fixed by law in many communities. Says Professor Harding of the University of Illinois:

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[5] Taylor, Rood: Hunger and Appetite Secretion of Gastric Juice in Infants' Stomachs, Am. Jour. Dis. Child., October, 1917, p. 258.

[6] Peabody, F. W.: Clinical Studies on the Respiration, III, A Mechanical Factor in the Production of Dyspnea in Patients with Cardiac Disease, Arch. Int. Med., September, 1917, p. 433. Peabody, F. W., and Wentworth, J. A.: Clinical Studies of the Respiration, IV, The Vital Capacity of the Lungs and Its Relation to Dyspnea, ibid., p. 443.

> No matter what is our personal judgment regarding the wisdom of such bacterial standards, the legally constituted authorities having thus established these limits of bacterial content, the burden rests on the producer and the retailer to observe them. When adjusting their business methods to such variable limits as those mentioned above, it is important that the dairymen have fairly accurate knowledge of the relative importance of the various dairy operations upon the germ content of the milk.

It is widely believed and insisted on for the guidance of dairymen that the construction and condition of the cow stable plays a very important part in the production of sanitary milk. The ubiquitous inspector is continually emphasizing the influence of barn conditions, so that large expenditures are continually being made by dairy farmers to meet the supposed necessities for securing recognition in the retail market. These features obviously cannot fail to add more or less to the item of cost in the production of milk—an item which should be cheerfully borne by the consumer if the expenditure is fully justified. It is surprising, therefore, to learn from investigations made in a large number of ordinary dairy barns by two of our prominent experiment stations that, when the influence of the utensils employed is excluded, the dairy barns themselves exert little measurable influence on the germ content of the milk.[1] Perhaps too little attention has been paid in the past to the utensils as a source of contamination. Competent dairy bacteriologists now tell us that, even under wide extremes in barn conditions, it is possible to produce milk with a germ content of less than 10,000 bacteria per cubic centimeter when the utensils are properly prepared.

Harding remarks that the mistaken impression respecting the relative importance of barn conditions in connection with germs in milk should not be taken as a criticism of health officials. Such officers are charged with the protection of the public health. When the facts are available, they utilize them. When exact information is lacking, they must proceed in accordance with their best judgment even though they recognize the fallibility of such judgment. Furthermore, as Prucha and Weeter[1] remark, this result must not be construed as a defense of dirty barns. They simply point to the fact that the large numbers of bacteria commonly found in milk do not have their origin in the barn. The findings of these recent investigations, substantiated by a series of independent investigations, cannot fail to be helpful to sanitary authorities, and may serve to readjust certain unnecessary economic burdens.

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[1] Prucha, M. J., and Weeter, H. M.: Germ Content of Milk, I, As Influenced by the Factors at the Barn, Bull. 199, Illinois Agr. Exper. Station, May, 1917.

THE COMPOSITION OF MILK FATS

The ordinary fats are regarded by chemists as glycerids; that is, compounds of glycerol (glycerin) and fatty acids. It must be borne in mind that as they occur in nature the fats and oils are never single chemical substances; indeed, they are seldom composed entirely of glycerids. Just as up to only a few years ago the proteins of nature were commonly considered as a class in their biologic functions, and distinctions between different types of proteins were rarely if ever made in a physiologic sense, so fats have until the present time been dealt with groupwise in practically all considerations of their nutrient or biologic significance. We know today, however, that the rôle of individual proteins in the organism depends on their digestibility and on the character of the amino-acids which they can yield. Certain of the amino-acids, like tryptophan, seem to be far more indispensable, for instance, than others like glycocoll, so far as their production from the dietary proteins is concerned.

May not some similar point of view be applicable to that somewhat heterogeneous group of glycerids known as fats? In any fat or oil there is a mixture of several glycerids, with varying quantities of cholesterol or substances related to it, and often free fatty acids or soaps as well. These considerations, Leathes[1] remarks, show that the number of compounds of fatty acids which have to be dealt with in biologic chemistry, and for which we have no single comprehensive name, is very large; and also that the precise constitution of any one such compound may, even when it is not complicated by the presence of phosphoric acid, be difficult to determine; whereas, when this complication does exist, the difficulty is bound to be greatly increased. In fact, at present these more complicated compounds of the fatty acids are among the most obscure of those with which animal or vegetable chemistry has to deal, more obscure and indefinite even than many of the proteins in human diet.

Evidently, in the case of the fats, the first point of attack in the move toward progress must consist in a better understanding of the nature and proportions of their constituent fatty acid groups. And no fats appear to be more worthy of elaborate analysis and study than those which go to make up part of milk, the prototype of perfect foods. The glycerids of a very large number of fatty acids occur in nature, and the possibilities of their mixtures and combinations must consequently be manifold. We can only agree with a recent student of the subject who remarked that no problem presents greater difficulties to the analyst than the quantitative separation and determination of a mixture of fatty acids, and the acme of difficulty is reached in the case of the most complicated mixture of fatty acids which is found in butter fat. For this reason, investigators have mostly been content to limit their attention to the determination of various more or less well defined groups of acids, such as steam-volatile, or water-soluble, or unsaturated acids, etc., whereby naturally only a very imperfect record of the variations in composition has been obtained by the research to date.

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[1] Leathes, J. B.: The Fats, London, 1913.

In a general way it has, of course, long been known that the mixture of glycerids of the fatty acids occurring in milk, and spoken of as butter fat, differs conspicuously from the other fats likewise rich in olein, palmitin and stearin by yielding more butyric acid (the volatile acid to which the odor of rancid butter is said largely to be due) and less stearic acid than other food fats. We heartily welcome, as a conspicuous step in advance, the investigation of the distribution of the fatty acids in the milk fat of the cow and the sheep, carried on by Crowther and Hynd[2] in the Institute for Research in Animal Nutrition at the University Department of Agriculture, Leeds, England. They state that there is clear evidence that the only acids present in more than minimal proportions are the unsaturated acid, oleic acid, and the eight saturated acids of the acetic series, representing the members with an even number of carbon atoms from C_4 to C_{18}, namely, butyric, caproic, caprylic, capric, lauric, myristic, palmitic and stearic acids.

The new values for butyric acid (4.3 per cent. for cow's milk fat and 6.5 for sheep's milk fat) are higher than those usually given. The presence of a very considerable content of lauric acid (about 5 per cent.) was firmly established, so that, as the English investigators state, the usually accepted idea that only traces of lauric acid are present in butter fat must be modified. They further find that palmitic acid is present in much smaller proportions than usually assumed, while myristic acid is more abundant. The content of stearic acid, regarding which there has likewise been considerable debate, was found to be 3.4 per cent. for cow's butter fat and 4.4 for that of the sheep. About two fifths of the total fatty acids consist of oleic acid.

The more precise appreciation of the nature and quantities of these various fatty acid groups which can be liberated by the digestive processes for absorption from milk, cream or butter may pave the way for a better understanding of the rôle of fats in the economy. In any event, the complex mixture conventionally termed "fat" is revealed in the case of the milk product as a source of a considerable number of definite compounds. Thus the relation of fats to their antecedents in metabolism, the precise mode of the degradation of fats when they furnish energy to the body, and the origin of intermediate stages of fat catabolism which sometimes crop out as pathologic products—these and other problems come appreciably nearer to an intelligent solution when the substrate involved is clearly understood.

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2. Crowther, C., and Hynd, A.: The Distribution of the Fatty Acids in the Milk Fat of the Cow and Sheep, Biochem. Jour., 1917, **11**, 139.

Current Comment

MEDICAL RESERVE OFFICERS AND ORDERS TO ACTIVE DUTY

"How soon shall I be called on to report for active duty?" This question and the uncertainty of its answer has been probably the most trying experience of the civilian physician who has accepted a commission in the Medical Reserve Corps. This uncertainty began on the day on which the commission was accepted because on that day the newly made medical officer realized that he had become subject to call, and must be ready to respond. There was a time in the early weeks of the war when medical reserve officers were ordered out on very short notice, often giving them only one or two days in which to close up their personal affairs. Some physicians, aware of this condition, even gave up their offices, practically closed their business, or made arrangements which they would not have made had they not presumed that they would be ordered out very shortly. These emergency conditions have now passed. No such uncertainty rests on the man who accepts a commission today, for the Surgeon-General's Office has announced that members of the Medical Reserve Corps will be given at least fifteen days' notice before being ordered into active duty. It is quite possible that even more than fifteen days will be given those who require more time in which to arrange their affairs.

THE NEW YORK CATSKILL WATER SUPPLY

The formal dedication, October 12, of the great Catskill aqueduct should not pass without notice in these days of absorption in warlike activities. It is not a question merely of the gigantic features of the undertaking from an engineering standpoint: a storage reservoir that can hold 132,000,000,000 gallons of water; an aqueduct 120 miles long starting at 610 feet above tide line and dropping to 1,114 feet below sea level when it passes under the Hudson River; a delivery capacity of 500,000,000 gallons daily; the cost to date of about $140,000,000; there is also the fact that this greatest of all water systems supplies a water probably as pure and free from all liability to produce disease as any in the world. The best expert advice in the country on sanitation has been obtained and acted on. A carefully prepared and controlled watershed, full utilization of the natural purification effected by extensive storage, filtration, aeration and chlorination have all been brought into play to create a high degree of safety and potability. No stone has been left unturned to make the new Catskill supply, what it probably really is, the best large water supply in the world. It is pleasant to learn that the whole undertaking has been carried out in a spirit of the highest citizenship.

"The construction of the Catskill aqueduct, covering a period of ten years, affords a model of honest, clean and efficient municipal government in which every citizen should take pride. It is being finished within the original estimate of expense, and is a commendable example of municipal economy. It has been completed within contract time, without a labor strike, and is a tribute alike to the commission which directed the work, the contractors who carried it out, and the workmen who labored faithfully to build it. In its inception it was fostered by citizen bodies having the public interests at heart, and in its execution it had their invaluable support. It is a testimony of what disinterested civic spirit in cooperation with faithful public officials can accomplish."[1]

The *Engineering News-Record*, Oct. 11, 1917, has this to say:

> Among the great dams of the world now stand, as a result of the water board's work, the Ashokan and the Kensico. The Hudson River and the Narrows siphons are the only two of their kind, while the many miles of aqueduct—in tunnel, cut-and-cover and steel pipe siphon—are without precedent, capacity and length both considered, in water-works records. All of this work, involving an expenditure of millions, has been kept free from suspicion of the honesty of any one connected with it, and from ugly controversy about the capability of the designers or the quality of the work; and this in a city where political contests have been fought bitterly, and where many efficient heads have been removed because principles were upheld. The engineering bureau has kept out the inefficient; has successfully resisted the onslaughts of those who might have sought improper advantage, and has given to the city a set of structures which experts have pronounced excellent in the highest degree.

"THE BASE HOSPITAL AND THE ICE MACHINE"

Some months ago, under the above title, we commented on the fact that one local Red Cross organization had refused to approve the appropriation of money for the purchase of an ice machine by a base hospital. The directors could see little use for an ice machine as part of the equipment of a base hospital. Now, far be it from us to take the credit through that little comment for the sequel, but it is very interesting to note in the *Official Bulletin* for Wednesday, October 24, that the Red Cross War Council has appropriated $70,200 for ten portable ice making plants for use in connection with the Red Cross base hospitals in France. The appropriation was made at the request of the American Red Cross Commission to Europe. So the base hospitals will now have their ice machines.

DEATH OF REVERE OSLER

In announcing the death of Sir William Osler's only son in the issue for September 8, The Journal stated that Revere Osler had been wounded while on active duty in France, and was taken to England for treatment, where he died. Recently Dr. D. L. Moore of Columbus, Ohio, sent to The Journal a quotation from a letter dated September 21 written by a nurse in one of the American hospital units in France. She said: "One of the saddest things that happened during our stay in Belgium was the death of Sir William Osler's only son. He was brought to our station one night with a bad chest wound, a perforating wound in the intestines, and an injured thigh. Drs. Brewer and Darracks got Dr. Crile, who was in a station back of us, and also Dr. Harvey Cushing, who was near, in consultation. Major Darracks, with whom I worked, did the operating, Major Brewer assisting, Dr. Crile giving a direct blood transfusion, and Dr. Cushing consulting generally. Everything was done that could have been done in any hospital, but the boy died several hours later. He was in the Royal Field Artillery service." A letter has just been received from Sir William Osler, dated Oxford, October 7, from which we quote: "My son Edward Revere was wounded in the chest and abdomen by a shell August 29, was taken to the Casualty Clearing Station, at which my good friends George Brewer of New York, and George Crile were stationed. Darrack of New York operated and Crile transfused. His life-long friend Harvey Cushing was also with him. Everything possible was done, but he died about twenty hours later. Many of my friends would be glad to know of this." It is gratifying to the thousands of American friends of Sir William Osler that when his son was mortally wounded the best medical and surgical skill was available, and especially that this skill rested in old-time American friends of both the father and the son.

BACTERIA AND VITAMINS

It is evident, Lusk writes, that the science of nutrition includes something more than the production of energy from fat, carbohydrate and protein. There must be certain salts and certain qualities of protein in the diet, and there must be minute amounts of vitamins. The food hormones, which are present in small amounts in various natural foods of both animal and vegetable origin, are essential to "the harmonious correlation of the nutritive functions." They have already entered into the popular literature of nutrition. This is highly appropriate; for although these as yet unidentified components of the diet are present in very small amount in most foods, healthy life seems to be impossible for any considerable time without them. Even among plants, with their large synthetic powers, growth seems to be influenced by factors similar to the food hormones of animal nutrition, if one may judge from the researches of Bottomley in England. He believes that vitamins or comparable hormones may be destined to play an important part in the cultivation of vegetable foodstuffs. And now come the bacteria to claim the need of such hormones. In an investigation on the chemical factors involved in the growth of the meningococcus, conducted at Cambridge by Dr. Dorothy Lloyd,[1] the vitamins have found recognition. We are told that the primary cultivation of the meningococcus in vitro is possible only in the presence of certain accessory growth factors (the so-called vitamins) present in blood, serum, milk and other animal fluids, and probably present also in vegetable tissues. These accessory substances are described as substances that are moderately heat stable. The vitamins are not the sole feature leading to success in cultures. The presence of suitable amino-acids is equally important; but these have already begun to be recognized as the appropriate bacterial pabulum.

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[1] Weekly Bull., Dept. of Health, New York City, Oct. 13, 1917, p. 324.

[1] Lloyd, Dorothy J.: On Vitamins, Amino-Acids, and Other Chemical Factors Involved in the Growth of the Meningococcus, Jour. Path. and Bacteriol., 1916, **21**, 113.

Medical Mobilization and the War

NEWS FROM A FOREIGN BASE HOSPITAL

U. S. Army Base Hospital No. 3 (Harper, Detroit)

Major Angus McLean, director of Base Hospital No. 17, Harper Hospital, Detroit, now United States Army Hospital No. 3, writes from France: "We have a fine hospital here of 600 beds, and are enlarging it to a 1,200 bed hospital. The hospital is located in the vicinity of the American troops. There are about fifty American patients here now. The following is a list of our staff as at present constituted: director, Angus McLean; assistant directors, Majors P. M. Hickey, H. N. Torrey, and George E. McKean; Capts. L. G. Hirschman, E. C. Cullen, Rolland Parmeter, W. D. Ford, Robert Owen, James Breakey, John C. Dodds, William E. Spitzley, A. Stirling, Alfred LaFerte, T. K. Gruber; Lieuts. Duncan Campbell, E. J. O'Brien, Fred Buesser, C. B. Lockwood, B. H. Larson, B. B. Belt, L. J. Cushman, H. Gregory; dentists, Earl Barkley and William T. Shannon."

PATRIOTIC PHYSICIANS OF MURPHYSBORO

Dr. Charles Molz of Murphysboro, Ill., writes that Murphysboro is a city of 9,000 people, and that of the seventeen physicians in the city, thirteen have taken the examination for the Medical Reserve Corps. Of the remaining four, two were too old, one a lady, and the other was physically disqualified. Of the thirteen physicians who applied, nine were accepted and four were rejected. Six of the nine are now on active duty.

UNITED STATES DENTAL SCHOOL IN PHILADELPHIA

Announcement is made that the Surgeon-General has ordered the establishment in Philadelphia of a school for training in oral surgery and plastic reconstruction of the face and jaws of men who have been maimed in the war. Twenty-five or thirty recently appointed officers of the medical reserve service will be detailed for didactic and laboratory study at the institution. Dr. Wilmer Krusen, director of public health and charities, has agreed to afford facilities in the dental wards of the Philadelphia General Hospital for clinical demonstrations, and has offered his office in city hall for meetings of the teaching board. Dr. Charles R. Turner, dean of the Evans Institute of Dental Surgery, will have charge of the organization of the teaching staff. He will be assisted by Dr. Herman Prinz of the institute in selecting the staff. Lecturers and operators from other medical and dental schools of Philadelphia, who are specialists in oral surgery, will become members of the staff.

NEWS OF THE TRAINING CAMPS

At Fort Riley

The campaign for the sale of liberty bonds in the Medical Officers' Training Camp at Fort Riley was a marked success. Six hundred and eighty-seven medical officers subscribed for a total of $95,000; the total for the camp was $213,000, an average of $73 per man. The total for the post was $6,000,000.

Equitation at *Fort Benjamin* Harrison

The real meaning for the concentration of energy in the training camps for medical officers is beginning to come to the surface. Physical conditioning has been in progress from the first, and still continues. How necessary it is to "be fit" is best evidenced by the test of endurance needed for "equitation," for "periods in the trenches," for "gas mask exercise," and for all the advanced military work now in progress. Very few of the doctors before the training in "setting up exercises" and the "fours right" and "fours left" drills could have stood up under the fatiguing work of the present.

At the medical officers' training camp at this post the A. B. C.'s have been well learned, and the actual work needed in campaign, as developed by the present war, is well under way. Not the least of this is horsemanship.

You may wonder at this assertion, believing, as do many, that cavalry no longer is needed. Even though cavalry is not conspicuous at present, it still exists, and must have medical officers attached to its units. Likewise, in the artillery, only the heavy type of gun is moved by motor. Most of the guns are horse-drawn, and those artillerymen who do not ride on the guns go horseback. Thus, here, too, the regimental surgeons must know how to ride. As a matter of fact, all surgeons in the Army are classified as mounted officers, and, therefore, must know the essentials of horseback riding. Not only is it necessary for the medical officer to be able to "stick on" an ordinary horse, but he must be familiar with the art of the care of the horse, and blanketing, saddling and bridling must be mastered.

The students on duty here have a most excellent advantage in this connection. It happens that there are a goodly number of fair horses for our use, and, better still, both the instructor and his assistant are expert horsemen. Hence, equitation, a part of the course which all must take, finally becomes a pleasure.

"You may think it is fun to teach civilian physicians to sit and stick on horseback; it is *not*." That was the remark of the assistant teacher in equitation when I asked him what he thought of his job. An active cavalry officer for seven years, but now a physician and medical officer, he felt the responsibility that rested on him, yet his natural humor was expressed when he remarked, "I cannot but think vividly of Don Quixote and his Rosinante when I see the equitating medicos."

All joking aside, here is what is actually being undertaken and accomplished: Under the supervision and tutorship of Major H. McC. Snyder, M. C., U. S. Army, himself a most accomplished horseman, and his assistant, Lieut. V. C. von Unruh, M. R. C., U. S. Army, who served as a cavalry officer for seven years in one of the European armies, the doctors are taken out for lessons in horseback riding from 1 to 5 o'clock every afternoon. At the picket line they find 130 horses standing, waiting in awe, and most assuredly in humor, for of this horses possess an abundance. Here the doctors are taught to fold the saddle blanket, to put it on the horse's back, to put on the saddle, tighten the cinch, measure the proper length of stirrups, and bridle their mounts. Next comes the difficult task of mounting, which feat must be mastered before the ride begins. Mounting inside the picket line is forbidden, and the horses must be "led out" to the line that forms for the start of the ride. When at last, after many trials and tribulations, with fractious horses loath to leave their feed boxes, the embryo cowboys are in line, the critical eyes of teacher and assistant inspect the squad. Here a blanket is put on wrong side out. "Unsaddle and put it on right" is the order. There a cinch is artistically woven with a beautiful figure-of-eight between the rings—truly a testimony to this surgeon's accomplishment in bandaging. Off must come that cinch, and on it must go correctly and quickly—mayhap, against the loud protestations of the doctor, who has "saddled a hundred horses," and thinks that the cavalry drill regulations may be improved vastly by his wise and valuable suggestions. Some cinches have been drawn so tight that the poor horse, when the doctor mounts, feels a constricting shortness of wind and there is a bolt and a kick, a jump and a lunge, and the poor "doc" kisses the sod, not from choice, but of sheer necessity. The saddle of another is so loosely cinched that, on mounting, the reserve corps surgeon gives a clear exhibition of "reversion to type." The saddle slides down on the left side of the horse, and the lieutenant or captain, or perhaps the major, hangs nervously holding on to pommel, saddle, stirrup and reins. You could not tell, on a bet, whether that struggling mass of living tissue was a doctor or his quadrumanous prototype of man.

When some eager enthusiast forgets to keep off the horse until the order to mount is given, he is usually taught his lesson by the horse, which sticks to the line like glue and refuses to advance. Instead of responding to the rider's "clucks," he bolts, rears and kicks until Mr. Caballera becomes detached from his *Equus caballus*. All that is left in such an emergency is to regain possession of that homeloving critter and "lead out," amidst the jeers of the waiting line of horsemen.

"Prepare to mount," "Mount" is commanded. All except three doctors manage somehow to climb to the Olympian heights of their saddles. Three unfortunates, however, now perform a veritable rococco minuet with their horses, circling around and around, *vis-à-vis* and *dos-à-dos*, until some kind orderly helps to hold the mount, and at last the seat is gained. "To have and to hold," the poet said—and this same thought was mine when I saw how easily a medico will part from his horse—almost as easily as the proverbial man from his money.

"Forward—March," and the squad moves on to the practice grounds, there to be divided into groups of from twelve to fifteen men, so that each may receive individual instruction in the use of thigh, knee, stirrups, reins and last, but not least, of the glutei. Some of the latter get "burned" because of stirrups too short, and many are the complaints on the following day. The lessons continue, however, and so do the "burns." Once a "burned one" was sent home, and on reaching the picket line a commiserating soul asked, "What's the matter, Doctor?" "Well, Doctor, you see, it's this way: My blisters broke, and so I had to come home."

The initial exercises mastered, the squad goes out for a cross-country ride—aye, more than this—to jump ditches and hurdles! All goes according to program, until some captain's horse bolts and races wildly for home, at a furious gallop, with half the squad following helplessly in his wake. No pullying on reins, no "Whoa, boy," no bracing hard in stirrups is of any avail. Mr. Horse has seen the leader's example, and now has his nose homeward set. Off they go like the phantom hunt, even the hounds at their sides gathering from along the roadway as the wild chase passes on.

On some other occasion a "medic" approaches the teacher with a broad smile hiding his face: "Oh, I can ride quite well, I've been on horseback all my life." (And he is 50 now.) Teachers are wise to such presumptuous assertions, and, of course, delight in giving this kind a special opportunity to prove his claims. When, a little while later, the command comes: "Gallop—March," Mr. Wise Horseman's arms flop like an eagle's wings, and his glutei imitate the steam engine's piston-head. Ah, yes, such "physical sitting-up" exercises do prove painful from more than one point of observation.

However exhilarating and fascinating the trip may have been, much of the joy evaporates when, on arriving back at the picket line, the order goes out to dry your horse with straw and, when dry, curry and brush him clean. How the ambitious rider now wishes he had curbed his desire for that last gallop which started the sweat on his horse. The horse, however, must be dried and cleaned, and, with firm resolves to stick to a walk as long as possible on the next ride, the doctors get back to camp to satisfy their ravenous appetites.

After all is said and done, our "medics" really like horseback riding. When their temerity has been subdued, and they have become accustomed to horse and saddle, they make quite a different picture. At the end of the four weeks' course in this work, although not expert horsemen, the students have learned how to ride.

NEWS OF THE CANTONMENTS

Thirty-First Division, Camp Wheeler, Macon, Ga.

The camp is undergoing an epidemic of measles. Every regiment brought in measles, and in some the disease has spread until several hundred cases have occurred. But three cases have been followed by pneumonia, and in no case has death or any serious permanent result followed.

Thirty-three cases of pneumonia have occurred in this camp with but one death. A careful, detailed record is kept of every case with the hope and expectation that tabulation and study of these cases will throw much light on this fatal disease.

Colonel Duncan spoke at a meeting of the Chamber of Commerce, Friday, called for the purpose of combating prostitution in Macon. Those who took part in the meeting were of one mind as to driving out street walkers and cleaning up malodorous hotels. The colonel addressed the Red Cross chapter the same evening.

Shortage of overcoats, blankets and heavy uniforms is believed to have been a factor in the recent increase in sickness.

The commissioned medical personnel of the Third Division is almost complete. Half a dozen medical men are now here, caught by the draft net. They will be examined for commissions.

BASE HOSPITAL NOTES

With seven wards of the 500 bed hospital incomplete and unoccupied, 642 patients are being well cared for tonight, just nine days from the opening.

As is to be expected in a new camp, measles and venereal diseases comprise a large majority of the cases, there being 271 of the former and 135 of the latter.

There is one case each of diphtheria, cerebrospinal meningitis and varioloid, and twenty cases of pneumonia.

The admissions are already well over the 900 mark.

The commanding officers' quarters were burned on the night of the 24th, and it required strenuous efforts on the part of the corps to save the hospital; but not a patient was injured or even disturbed. Before the ashes were cold, rebuilding began.

The enlisted men have met the situation as soldiers should, and have done the work, though there are no nurses to help and the corps itself consists of only 126 men, being about seventy short. This shortage was supplied today by drafting on the field hospital for men; the Nurse Corps is expected soon.

The base hospital subscription to the Liberty Loan was the highest per capita of any organization in the division, and entitled to first place in review; but officers and men were too busy to attend.

ONE HUNDRED AND SIXTH SANITARY TRAIN

At the Division Review, with the organizations rated according to their per capita subscriptions to the Liberty Loan, the sanitary train occupied the position of honor on the extreme right of the division. With a commissioned personnel of thirty-four and enlisted strength of 378, the total per capita subscription per man was $65.16. The total amount subscribed by officers was $5,750, a per capita credit of $168.82; the enlisted subscription was $21,100, or a per capita of $55.82. The ambulance company battalion led the train, having a few more dollars per capita to its credit than the field hospitals. The leading company of the entire train was Ambulance Company No. 121, commanded by Capt. Robert F. Ashworth, Medical Corps, Alabama National Guard. The passage in review was well conducted, alinements were accurately maintained, and favorable commendation was heard on the appearance of the medical troops in comparison with their brethren of the line.

The camp site formerly occupied by the camp hospital has been cleared and burned over. The removal of the many hospital ward tents of the field hospital companies has left a void to which, as yet, our eyes are not accommodated. Despite the size of the task we had, we frankly admit that we miss it.

On the night of the fire at the base hospital, the Florida, Georgia and Alabama field hospitals held themselves in readiness to pitch their canvas to accommodate the 400-odd patients of the base hospital, should the spread of the conflagration require it. The ambulance companies stood ready with their entire motor and mule-drawn equipage to evacuate the wards should it become necessary. Fortunately the flames were confined to the small building in which they started, and we were enabled to turn in with our minds at ease.

The work on the framing and flooring of the tents of this command is now practically completed, with the resulting increase of comfort of the men during the chilly nights.

The tremenduous amount of work being thrown on the base hospital, with its inadequate enlisted personnel, has necessitated the detailing of a total of seventy-two men from the train, thirty-six from the field hospitals, and thirty-six from the ambulance companies. While this interferes, to some extent, with the maintaining of a uniform drill schedule, it is evident that the knowledge acquired by these men at the base hospital will be invaluable and tend more rapidly to complete their training as members of the medical department.

On Wednesday evening, last, the weekly social of the officers was held with its usual success. The brisk air of the evening added to the enjoyment of the dancing. Luncheon, with coffee, was served in the mess hall between dances. The orchestra of the Florida field hospital augmented by a new violinist rendered the music.

The anticipation of a roast possum dinner was destroyed by the fact that some unkind person liberated Brother Possum from his cage. Said possum was captured in a foot race by Major Job C. Patterson, director of field hospitals. The genial major must secure another animal in order to make good his repeated promise of "possum and 'taters."

The organization of ladies' committees for the procuring of delicacies for sick soldiers is progressing favorably, the idea being to concentrate especially on those men who are convalescing from serious illness.

The missing flat car has finally arrived, containing the two motor ambulances necessary to complete the full complement of one company now on hand. This now gives us twelve standard GMC ambulances and No. 13 Car, known as Spare Parts and Repair Car. The good news that another complete motor ambulance equipment is on the way has been received. The motorcycle cars, with their "bath tubs," we understand, are also en route.

Fortieth Division, Camp Kearney, Linda Vista, Calif.

The cantonment of the Fortieth Division is located on a plateau, 17 miles northeast of San Diego. The surrounding country is sparsely settled and furnishes enough variety of contour to allow maneuvers of all kinds to be made. It is covered with a scrub brush of greasewood, sage brush and cactus. The soil is shallow, of the type known as gumbo. A few inches below the surface is a strata of hard pan impervious to drainage. All excavations in the cantonment had to be blasted. The amount of the annual rainfall in this vicinity is very limited and confined to the winter months. There are no streams or springs in the vicinity of the camp and very few wells. The water supply of the cantonment is furnished by the city of San Diego, which installed a complete pipe line, with reservoir, to take care of the cantonment. A complete sewer system was installed, with septic tanks. The garbage is removed by contract. Refuse is hauled to a designated dumping ground some distance from the camp. The climate is equable, the temperature never reaching the freezing point. Variation from noon to midnight is great, but no provisions have been made for heating the tents. The ocean is only a few miles from the camp so that fogs are often found in the early morning. The number of cloudy days is practically nil.

PERSONAL

There are several medical officers attached to the Fortieth Division who have seen active service abroad. Major W. A. Jolley served with the American Red Cross at Belgrade, Serbia, during the typhus epidemic and was present during a bombardment and capture of Belgrade by the Germans. Major J. R. McDill was sent to Germany for the American Physicians Expeditions Committee of New York in June of 1916. Major Phillip S. Chancellor was in France for several months in 1916. Lieut. Kenneth Beymer Turner was an officer in the English Expeditionary Force in Serbia. He was given a commission in the French Army after the invasion of Serbia. On the entrance of the United States into the war he returned to America and joined the army of the United States. Capt. Byron Stookey served in France with the Harvard Surgical Unit during 1915. These officers will be a great value in preparing the division for foreign service.

Forty-First Division, Camp Greene, Charlotte, N. C.

This camp is made up of militia organizations of the several Western States, to wit, Washington, Oregon, Idaho, Montana, Wyoming, New Mexico, North Dakota and South Dakota. It makes a distinctive unit, as a war factor, because many of the men served on the Mexican border. Of course there have been quite a few new enlistments since then, but a good nucleus for a fighting machine had already been started. The change from the West to the East has added "pep" to the men. All want to show what good material the West can produce to help win victory for our country.

The camp is pleasantly situated in a rolling country and mostly in cotton fields. The climate is good, and the surroundings aid to make a good training camp. All officers and men are housed in tents, with floors and sides. For heat, the Sibley stoves are used, thus making it comfortable for all.

The base hospital has an area of about 67 acres, and has buildings erected for all conveniences of patients and attendants. Major W. L. Sheep, M. C., U. S. Army, is the commanding officer, and there are thirty-one medical officers and 125 enlisted men. All those with contagious diseases, all who require medical or surgical treatment, other than those slightly ill or wounded, and those under observation are sent there. At the base hospital a staff for dental work is established, besides the regimental units, which have one or more dentists assigned to duty with those units.

Capt. John T. Rugh, M. R. C., has been assigned as instructor in orthopedic work. Lieut. Paul V. Anderson, M. R. C., is in charge of the neurologic department. Major Francis W. Palfrey, M. R. C., has charge of the tuberculosis and heart examinations. These medical officers examine the men of the division in their separate specialties, and weed out the noneffectives, all of which aids in the building of a very effective fighting machine.

Capt. Leonard A. Ensminger, M. R. C., is the medical officer assigned to give instructions to all the officers and men of the division in gas defense.

Lieut.-Col. O. G. Brown, M. C., U. S. Army, is the division surgeon. The assignment of all the medical units is made through his office, which entails an immense amount of good judgment and experience.

The sanitary train is composed of four field hospitals and four ambulance companies. Its quota is practically completed.

The percentage of sickness in the camp has been the lowest, with one exception, of all the cantonments. One death has been reported thus far from pneumonia. Meningitis has appeared in the camp; two cases were positive, one reported not positive. All the patients are recovering. Strict quarantine and other measures are taken to prevent the spread of the disease, including microscopic examinations of cultures taken from the posterior nares of all men in quarantine.

SOCIAL AND PERSONAL

Brig.-Gen. Henry Jervey and wife entertained, Saturday, October 13, from 2 until 6 p. m., for officers of the division.

Regimental bands play daily at the commanding general's headquarters from 4 to 5 p. m.

The study of French has been taken up by officers and men, and classes are held at regular intervals.

Eightieth Division, Camp Lee, Petersburgh, Va.

When the last notes of Camp Lee were sent to The Journal there were 38 medical officers assigned to the base hospital and 80 medical officers in the division. Since that time 59 medical officers have reported.

With the steady increase in the number of troops at Camp Lee the increase in the medical commissioned personnel was warmly appreciated and it will considerably lighten the labors of the medical officers. There are a number of training battalions at Camp Lee as well as the regular units of the division. The medical officers attached to these battalions have been constantly busy with physical examinations and mustering and then when they see the end of this work they suddenly learn that these new troops are to be transferred to some other camp. A surgeon accompanies each group of men that are transferred, and when the medical officer returns he finds physical examinations and muster awaiting him again. Captain Williamson, Lieutenants Tunnell, Stover and Miller have recently been through this experience and Lieutenant Miller's report of his work since his arrival shows what the medical work of these battalions means. Lieutenant Miller arrived in the middle of September and began the work of completing the physical examinations. Just as he was nearing the end of his work he was assigned to assist another medical officer's unit in their mustering work. This work completed, he accompanied 600 men to Camp ——. Entrained at Camp Lee, Friday morning, Capt. Alfred Degerman in charge, and reached Camp ——. Though the skies were overcast, not so the spirits of the men, who were joyous as they marched to the training station led by the junior line officers who had labored with them for several weeks to get them in shape for movement. So diligent was this work that, amazing as it may appear, these men, mostly from the farm, workshop and mine, were transformed in this quite short period to acceptable looking and acting soldiers. Their behavior en route was excellent and the medical officers had but two unimportant cases to attend. In contrast to other troop trains reaching Camp —— at or about the same date, this command was unfortunate in that there were no sleeping accommodations provided for officers or men. In addition, through failure to provide a key for the gas supply, the train was in darkness until between 8 and 9 p. m.; a station was reached where a key was procured, but in spite of these discomforts and the unfortunate inability of the supply officer to procure coffee for the men Saturday morning, they still had "kick" and were full of "pep" as they marched to the receiving station on leaving the train. Here we were met by the receiving officer and our commanding officer, relieved of further responsibility, every man responding to his name at roll call. Camp —— is beautifully situated, just 13 miles from —— with a fine approach of improved road. While we were favorably impressed with the camp, we all voted Camp Lee, Va., "Premier," and were not loth to return, arriving at Camp Lee, Va., on Tuesday.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

SOCIAL WORK FOR SOLDIERS

Since the number of men on the streets of Louisville has been increased by the soldiers in the cantonment at Louisville, the civic bodies have again begun the agitation in favor of the establishment of public comfort stations in the downtown district. The importance of these stations was emphasized by the Louisville Commercial Club, during the presidency of Dr. Henry E. Tuley, but succeeding city administrations have plead limited finances as an excuse for not erecting one or more stations. It is now pointed out that the daily population of Louisville is about one fifth more than at the beginning of the war, caused by the presence of the soldiers and the visitors brought to Louisville. The opening of the new Soldiers' Club House, at 619 Fourth Street, a four-story building, with all conveniences, will greatly aid but not meet the demands for such stations.

A special detail of officers clad in private's uniforms set out on Saturday for the purpose of securing information as to whether soldiers are securing intoxicating liquors, and in a general way investigating all form of vice. Col. C. F. Crain, provost-marshal, is endeavoring to limit both bootlegging and pandering in the outskirts of the camp reservation and in the city.

The Sick Soldiers' Cheer-Up Club is a new organization composed of the wives and daughters of out-of-town officers stationed at Camp Zachary Taylor. The club made its first visit to the camp base hospital and brightened the day for many a sick and convalescent soldier with gifts of flowers, fruit, cakes, cigarets and matches.

THE BASE HOSPITAL

At present, there are about fifteen wards occupied, three isolation, four medical wards, four genito-urinary, two surgical, one eye, and one nose and throat. There are about 400 patients in the hospital. Of these there were fifty-five measles, nineteen mumps, twenty-eight pneumonias and one cerebrospinal meningitis. There have been two deaths from pneumonia and one from streptococcic cerebrospinal meningitis. The medical staff is preparing to use the pneumococcus serum Nos. 1, 2, 3, 4 as soon as it can be sent from Washington, D. C. They are also examining for meningitis carriers and are planning to use in them the prophylactic treatment with meningococcic vaccine.

EXAMINATION OF DRAFTED MEN

Capt. Philip Stewart, Paducah, in charge of the surgical service at the base hospital, examines for the general surgical conditions such as hernia, flat-foot, joint injuries and for alleged or supposed defects which make the recruit limp in drilling. There are many of these, and it requires great skill and clinical judgment to detect those suspected of malingering. Capt. Victor Meddis, Louisville, has charge of the venereal cases. A great many cases of active syphilis are rejected. A great many recruits enter the camp with acute gonorrhea. These are isolated and treated for a few days, and if no complications exist, are then assigned to duty. Tertiary syphilis patients are not discharged but treated under Wassermann control. The neurologic cases are under the charge of Major Milton Board of Louisville. The neurologic ward is well equipped with special rooms for the observation of special cases such as dementia praecox, epilepsy and the acute insanities. Major William H. Wilder, Chicago, acts as consultant to the ophthalmic division of the reviewing board, while during his absence the work is in charge of Captain Barton. A great many cases of trachoma have been found. These are promptly rejected. At one time there were forty-five cases in an isolation ward under observation. Major Frederick Menge, Chicago, is in charge as consultant of the ear, nose and throat division. During his absence this department is looked after by Capt. Lawrence Littig, Davenport, Iowa. Capt. M. J. Lichty, Cleveland, examines all suspected cases of tuberculosis. A board of tuberculosis examiners, consisting of ten officers of the reserve corps, contract surgeons, will shortly begin an examination of every accepted man in the camp, including all officers. The cardiovascular examinations have been made by Dr. Willard J. Stone, Toledo, contract surgeon. About 50 per cent. of all recruits referred for alleged disease of the heart are rejected. The remaining 50 per cent. are found fit after tests designed to show the fitness of the recruit to stand effort. A large number of hearts showing functional murmurs are accepted, while many supposed functional or accidental murmurs are found to have definite evidence of earlier infective damage to the valves or myocardium. In questionable cases the heart is examined by the fluoroscope and roentgen-ray plates are made by Captain Sprague, in charge of the roentgen-ray laboratory.

The action taken by the reviewing board as to physical fitness for service is final when approved by the division surgeon, Colonel Allen, to whom all papers are referred for final action. A great many letters are received from anxious parents, public officials and interested friends of him concerning the disability of certain recruits. Considering the manner in which the recruits were examined by local boards for the selective draft it is surprising that more gross errors of judgment are not found. About 3,000 cases have been referred to the reviewing board for decision, out of approximately 27,000 men in the camp. Of this number referred approximately 50 per cent. have been found to be unfit for service. The reviewing board has had some interesting cases of malingering follow certain rejections for genuine disabilities. Cases of malingering have followed rejections for pulmonary hemorrhages, nocturnal enuresis, chronic rheumatism, defective vision, and peculiar gaits.

PERSONALS

Major John Ridlon spent several days at Camp Zachary Taylor recently, during which time he gave two lectures to the medical and line officers on the care of the feet. Dr. Ridlon spent one summer at Plattsburg with the Medical Officers Reserve Corps in training there.——The officers of the reviewing board are: chairman, Major Walter Hamburger, Chicago; recorder, Lieut. Willard J. Stone, Toledo. Major Hamburger is also president of the disability board, chief of the Medical Service and member of the auditing and hospital council. The disability board has to do with the examination and discharge of enlisted men. Many new recommendations are being made by the Surgeon-General's Office to meet new war conditions.——Under Major Worthington, M. C., U. S. Army, commanding officer of the base hospital, all medical men attached to the hospital are drilling one hour a day, four days a week, and four night classes are being held a week on "Army Regulations" and the "Manual of the Medical Department of the Army."——Major-General Hale has extended the hours of leave for the drafted men to Wednesday and Saturday afternoons and Sundays. Medical officers have leave also on these days.——A wonderful service is being rendered the base hospital staff by a local organization known as the Woman's Service League in supplying needed equipment for the hospital. Ice bags, refrigerators, instruments of all descriptions, and special nurses in certain cases have been supplied on request of the commanding officer.——Steam was turned on in the officers' barracks at the base hospital for the first time on October 27. This was a welcome addition to the comfort of these hard-worked men. Pending the heating of the wards all seriously sick soldiers were sent to the soldiers' ward at the City Hospital. At the request of Major Worthington, the City Hospital Committee representing the University of Louisville recommended the appointment of Major Hamburger and Lieutenant Flexner, as members of the medical visiting staff, and Captains Stewart and Price, of the surgical staff, and Captain Sprague, visiting roentgenologist. One death has occurred at the City Hospital of a soldier from acute mania.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Oct. 19, 1917

1. Total strength of troops 988,372
   Admission rate per 1,000 (disease only) ....annual 974
   Non-effective rate (all causes) 21.6
2. National Guard—strength 314,174
   Admission rate per 1,000 all camps (disease only) ..annual 952.6
   Non-effective rate all camps (all causes) 23.5

The following camps show admission rates for disease higher than average: Camp McClellan, 1,077.4; Camp Wheeler, 1,043; Camp Logan, 959.3; Camp Cody, 1,146.5; Camp Doniphan, 1,504.6; Camp Bowie, 1,001; Camp Shelby, 1,253.4; Camp Beauregard, 1,689.9; Camp Kearney, 1,279.5; Camp A. L. Mills, 1,221.7.

The following camps show non-effective rates (all causes) higher than average: Camp MacArthur, 36.6; Camp Logan, 29.05; Camp Doniphan, 27; Camp Bowie, 27; Camp Shelby, 38.1; Camp Beauregard, 33.9; Camp A. L. Mills, 31.4.

3. National Army—strength 421,619
   Admission rate per 1,000 all camps (disease only) ..annual 1,014
   Non-effective rate all camps (all causes) 17

The following camps show admission rates for disease higher than average: Camp Dix, 1,091.4; Camp Lee, 1,148.7; Camp Gordon, 1,079; Camp Pike, 1,220.3; Camp Dodge, 1,098.7; Camp Travis, 3,493.7.

The following camps show non-effective rates (all causes) higher than average: Camp Dix, 17.5; Camp Dodge, 24; Camp Travis, 40.6; Camp Lewis, 25.1.

4. Venereal Disease—
Admission rate Regulars 77.8
Admission rate National Guard (Camps) ....annual 118.8
Admission rate National Army 146.4

The following camps, National Guard, have rates above average: Camp Sevier, 254.7; Camp Wheeler, 168.2; Camp Logan, 158.5; Camp Cody, 148.5; Camp Bowie, 153.3; Camp Sheridan, 146.9; Camp Shelby, 142.3; Camp A. L. Mills, 186.8.

The following camps, National Army, have rates above average: Camp Jackson, 367.9; Camp Pike, 629.8; Camp Funston, 174.6; Camp Travis, 486.4.

5. Number of cases of pneumonia 198
Highest number in any one camp ....(Travis) 41
Number of cases of meningitis 12
Highest number in any one camp ....(Funston) 4

6. SPECIAL DISEASES REPORTED DURING THE WEEK ENDING OCTOBER 19, 1917

Division	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
27th, Wadsworth..	..	..	..	35	..	..	..	..	..	33,503
28th, Hancock.....	..	..	..	13	..	..	..	..	..	28,545
29th, McClellan....	3	..	..	34	..	..	..	2	..	25,074
30th, Sevier........	4	..	4	98	..	..	9	..	..	20,039
31st, Wheeler.......	5	1	5	65	..	..	27	..	..	17,184
32d, MacArthur..	..	1	..	44	..	..	1	..	..	23,562
33d, Logan.......	9	..	16	61	..	1	3	..	..	20,025
34th, Cody........	2	..	..	69	..	..	5	..	..	20,945
35th, Doniphan....	7	..	10	41	..	..	45	..	..	21,644
36th, Bowie.........	..	1	3	39	..	2	29	1	..	20,172
37th, Sheridan.....	..	..	..	65	..	..	2	..	..	23,451
38th, Shelby.......	7	1	3	52	..	..	39	1	..	18,907
39th, Beauregard..	..	..	9	12	..	..	31	..	..	6,413
40th, Kearney.....	2	..	..	7	..	..	6	..	..	8,893
41st, Greene........	7	..	..	16	..	..	11	1	3	15,553
42d, A. L. Mills...	4	..	4	37	..	..	..	..	..	10,298
76th, Devens.......	3	..	1	13	..	..	3	..	..	34,639
77th, Upton.........	..	..	..	28	..	..	..	..	..	29,217
78th, Dix...........	1	..	..	15	..	..	..	..	1	20,184
79th, Meade.......	1	..	..	9	..	..	..	..	..	18,738
80th, Lee...........	1	..	..	31	..	1	..	..	..	30,599
81st, Jackson.....	2	..	..	92	..	..	16	..	..	13,117
82d, Gordon.......	2	..	4	20	..	..	21	..	..	12,033
83d, Sherman.....	3	2	..	37	..	..	..	..	..	32,335
84th, Taylor.......	7	2	1	19	..	1	..	..	..	26,612
85th, Custer.......	1	..	..	17	..	..	2	..	..	17,743
86th, Grant.........	8	..	1	15	..	..	..	..	..	29,203
87th, Pike..........	2	1	23	277	..	..	46	..	..	23,363
88th, Dodge.......	14	..	..	52	..	2	3	1	..	23,144
89th, Funston.....	12	..	..	135	..	..	..	4	..	40,188
90th, Travis.......	41	..	4	204	..	..	..	..	..	32,695
91st, Lewis........	1	1	..	78	..	..	3	..	..	33,779

	Regulars, U. S. Army, in U. S. only, 1916		Regulars in U. S. week ending Oct. 19, 1917		Nat'l Guard, All Camps, week ending Oct. 19, 1917		Nat'l Army, All Camps, week ending Oct. 19, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, diseases only, annual rate per 1000	....	613	....	873.4	....	952.6	....	1014.0
Pneumonia.........	....	2.59	22	5.4	50	8.2	99	12.2
Dysentery.........	....	3.97	5	1.1	4	0.6	6	0.7
Malaria...........	....	12.52	11	2.7	54	8.9	34	4.1
Venereal..........	....	91.00	316	77.8	719	118.8	1187	146.4
Paratyphoid.......	....	0.31	0	0	0	0	0	0
Typhoid...........	....	0.21	5	1.2	3	0.4	4	0.4
Measles...........	....	20.29	70	17.2	199	32.8	94	11.5
Meningitis........	....	0.29	2	0.4	5	0.8	5	0.6
Scarlet fever.....	....	0.59	13	3.2	3	0.4	1	0.1

7. Deaths by causes—

Lobar pneumonia	9
Pulmonary tuberculosis	4
Bronchopneumonia	3
Cerebrospinal meningitis	2
Appendicitis	2
Typhoid fever	2
Septicemia	2
Peritonitis	1
Dysentery	1
Miliary tuberculosis	1
Myocarditis	1
Malaria, estivo-autumnal	1
Tuberculous meningitis	1
Cerebral hemorrhage	1
Endocarditis	1
Diabetes mellitus	1
Traumatism	7
Suicide	2
Fracture of skull	1
Cause not reported	3

THE CONTROL OF VENEREAL DISEASE IN THE ARMY

The meeting of the College of Physicians of Philadelphia, Oct. 3, 1917, was devoted wholly to a discussion of the control of venereal disease in military life. Major George E. de Schweinitz, M. R. C., presided. Before the meeting Dr. W. W. Keen presented to the college the retractor used in the operations on President Cleveland in 1893.

The Problem of Dealing with Venereal Diseases in Great Britain

Col. T. H. Goodwin of the British Army was warmly greeted. "Estimates made by the Royal Commission on Venereal Diseases," he said, "indicate that *in the* larger towns in England at least 10 per cent. of the total number of inhabitants is *infected* with *syphilis*, and that *gonorrhea* is even more prevalent. This would mean that in London alone there are 450,000 *syphilitics. Sir William Osler places this* disease as third on the list of what he terms 'killing diseases.' That venereal diseases have *not been* adequately *grappled* with as have other infectious diseases is due to the mistaken *policy of silence." In the Army, notwithstanding that the* best methods of treatment are in vogue and that the incidence *of the disease has been diminishing, it was found that in* 1912 the average number of men incapacitated was 593 which, with an army of *107,000* men, represented a *loss of over* 216,000 working days in the year. The rate of the incidence of the disease in the Army in 1913 was 5.3 per cent. per annum; for 1916 it was 2.1 per cent. per annum. During active service the disease is more adequately dealt with than during peace. Improved methods of educating the soldier on this matter, the provision of greater facilities for recreations in cantonments, and the decrease of alcoholism have had a very considerable effect in decreasing the incidence *of* venereal diseases. The national council for combating venereal disease, with Lord Sydenham as president, embraces many leaders of the medical profession, representatives of the churches, and many women social and philanthropic workers in close coöperation. The aims of the council are briefly: (*a*) provision for education and enlightenment; (*b*) provision of greater facilities for treatment; (*c*) provision of increased opportunities for study of these diseases on the part of medical practitioners and students, and (*d*) promotion of legislative, social and administrative reforms.

Up to June of last year, more than 600,000 soldiers had attended the lectures *given. The point of* view taken by the royal commission is that it is both the duty and to the interest of the state to see that venereal disease is promptly cured. Facilities for diagnosis are organized so far as possible in connection with existing laboratories in universities and in general and county hospitals. Wards in general hospitals for indoor patients are allocated to venereal patients. For outdoor patients, evening clinics are provided. The objection to the provision of special hospitals lies in the resulting publicity. It is recommended that salvarsan should be provided gratuitously, under proper safeguards, *to private practitioners* for use among the poorer patients. Sir Malcolm Morris believes that under present conditions *compulsory* notification and treatment are impracticable. Sir William Osler would welcome notification. The conclusion *of* the *royal* commission was against this measure. "I myself am strongly in favor of the adoption of compulsory *notification*," said Colonel Goodwin, "and believe that with the advance of education and the recognition of the gravity *of the* matter, this will be enacted. The commission emphatically recommends the prohibition of all advertisements *of remedies* for venereal *diseases*, and favors the legal prohibition of treatment by unqualified persons. Some difficulty *obtains*, however, in securing such a law at present. I believe," he continued, "that unauthorized treatment of these diseases *should* constitute a *penal* offense. I also think that it should be the duty of a medical man to acquaint the parents *of any* girl who contemplates marriage with a man whom he is treating for venereal disease, and that such *communication* should be recognized as *privileged*. The wilful communication of venereal disease should, in my opinion, constitute a legal crime. While the proof *of* knowledge might be difficult, the measure would tend to the good of the community. This present world-wide war, apparently productive of nothing but evil, is teaching us to regard life and death *as less* important than the future welfare of mankind; and if such matters as adequate control of venereal diseases, world-wide prohibition of alcohol, and an increasing, instead of a decreasing, *birth* rate result, it may possibly be found that, terrible as it is, it was not without some good results."

The Preventive Tide of Social Disease

The next speaker, Mr. George W. Braden, of the Central Y. M. C. A. of Philadelphia, stated that the moral standards maintained in a military camp greatly affect the venereal disease ratio. A study of the Mexican border situation made by Mr. Max Exner of the Y. M. C. A. International Committee and a member of the Fosdick Commission on Training Camp Activities states that when men were kept busy with wholesome games and amusements, proper educational service was rendered and temptation removed as far as possible in nearby towns, the number of men applying for prophylactic treatment was very low. Mr. Braden cited figures from several of the camps under varying conditions which showed definitely that the incidence of application for prophylactic treatment was far less when proper recreation was provided.

Social Diseases in the Army as Affected by the Soldiers' Environment

Major William F. Snow, M. R. C., emphasized the practical details which the Army is carrying out in the prevention of venereal diseases. "As a medical profession we have not quite become convinced," he said, "that the venereal diseases are amenable to the same methods of attack that we have applied to the other communicable diseases. We are, however, on the eve of carrying this application into effect. In venereal disease we have a problem of the human carrier, and therein lies our difficulty because the carriers spread the disease through the development of habits opposed to the moral standards of the community. The circumstances connected with the control of these individuals is such that we either have to legalize their immorality or interfere with the liberty of large numbers of persons. Controlled prostitution has been found inadequate in the epidemiology of venereal diseases, to say nothing of the opposition of the public to this method. It has taken this war with the ten or fifteen years of effort and education to bring about a crystallization of public opinion to try other methods of controlling venereal diseases." Education and recreation, he believes, are the chief steps. The control of alcohol has been put forward by almost all persons interested in this problem as one of the biggest factors in the control of prostitution and therefore in the control of these diseases. The government combines these agencies in two major groups, the group dealing with education, recreation and entertainment, and the group dealing with police power with control of alcohol and the repression of prostitution. Congress has given the President and the Secretary of war authority over zones around all our military camps. The secretary of war has created the Commission on Training Camp Activities, which is developing a network over this country of voluntary cooperation to do whatever can be done along these lines of effort. So far as the Army is concerned, the various commanders are finding groups in the communities who are interested in the stimulation of this effort. There will be some soldiers, however, who will expose themselves, and stations are being established for treatment, and the Army is making a special effort to render the treatment station an educational matter. Some will fail to receive treatment in time, and will develop the disease. The genito-urinary men attached to the Surgeon-General's staff will make every effort to obtain the social facts from the soldiers to make it possible to trace the carriers. In Canada there has been much encouragement felt by the cooperation of the soldiers in tracing the carriers in civil life. In order to combine all these efforts, the Surgeon-General has created under Colonel Russell a department that will devote its efforts primarily to this preventive phase of the venereal diseases. Inside the camp, certain officials will be working with the regimental surgeons in studying the cases that develop. Sergeants who are especially trained will work with the officials in ascertaining the facts without embarrassing the soldiers or making the matter appear to be a disciplinary measure. In order that such information may be used wisely, a series of officials are being appointed who will work in the extracantonment areas whose chief business will be to know the attitude of the community toward the problem, to know the health official and the other forces that may be counted on to carry through any effort to find carriers in the civil community.

Social Diseases in the Army

Col. Frederick F. Russell, M. C., U. S. Army, chief of the division devoted to laboratory work, said that syphilis and gonorrhea can now be placed with other infectious diseases and not classed merely as moral and social problems. The Army surgeon in the United States has absolute control of the soldier inside the reservation. In time the new citizen soldier will learn that he is a part of the great world machine, and his ideal will be to keep himself in the pink of condition. We have a large number among our recruits who immediately become patients. In the old days most army posts were surrounded with evil places over which the Army had no control. At present the law gives us control of a zone surrounding each camp where the commanding officer has almost complete police power. We shall have to contend with more venereal disease in the Regular Army this winter than ever before. The third week of the draft Army showed an astonishing increase in the number of cases of venereal disease. Whether this means that these diseases are much more common among young men of military age in the civil population than we ever supposed, I do not know. Certain it is, however, that we have almost 400 per thousand, whereas our highest rate in the last twenty years in the Army has been 162. Treatment begins from the first day the men begin to assemble, and we now have hospitals full of draft men with venereal disease which they contracted before joining. The most interesting point is not of recovery but of how many days it will be before the patient is returned to his military duty. In their order, the commonest diseases in the service are venereal diseases, tonsillitis, influenza, bronchitis, diarrhea and enteritis. The Surgeon-General has had prepared a small manual on the present day methods of diagnosis and treatment of venereal diseases. We hope by means of this manual and the service of qualified specialists as consultants to standardize and develop this field of medicine, and bring home to every physician the great value of modern scientific treatment. We shall institute early treatment of venereal infection by all the so-called prophylactic methods, if possible within a few hours of exposure. We shall make frequent inspection of the troops to discover concealed cases. We shall penalize a man who develops venereal disease by taking away his pay and his liberty until he is cured. If he develops venereal disease and does not avail himself of the facilities of treatment, he will in addition be courtmartialed, and if found guilty he will be placed in confinement at hard labor. If in spite of these requirements he develops disease, he will be sent to the hospital, put to bed, and be given a course of intensive treatment until he is no longer a source of contagion to others and is well on the road to recovery. Without the cooperation of the civil practitioner, the help of the social worker and of the public as represented by the civil and state authorities, the Army surgeon will not be able to accomplish more than has been done in the past. Success depends on the earnest support of the entire medical profession of the country.

General Discussion

Dr. Edward Martin described plans for the cooperation of the civil medical profession of Pennsylvania. "We mean to have our health officials treat the man with gonorrhea and syphilis, or both, who cannot be kept under medical control, with as little respect as to his rights as they would treat one suffering from smallpox. Our state committee will recommend to the legislature that places be provided for the treatment of such patients. There is no reason why hospitals receiving state aid should not take these patients within their doors and keep them until they are no longer sources of danger, except in institutions in which girl babies are cared for. Here gonorrhea should be excluded. In every county of each state there is a subcommittee of the Council of National Defense, and before the war is over we hope to have a law by which these diseases under national restriction must be reported, and by which a person conveying them knowingly or otherwise may be liable for criminal prosecution or damages.

Major E. H. Siter stated that when the war is over and the men in the Army have seen the efficient treatment there instituted and have known the ravages made in the ranks, the great etiologic factor will, he believed, be corrected. It is not the professional prostitute who does the damage, but the casual prostitute hanging about the cantonment. The disease must be treated intensively. This cannot be done except in a hospital.

Dr. Jay F. Schamberg mentioned the recent organization at Cincinnati of the American Society for the Control of Syphilis. The membership is composed of specialists who will develop the activities along medical, legislative and educational lines, cooperating so far as possible with the American Society of Social Hygiene. "Until recently, a dose of salvarsan has cost $4.50 an ampule, which prohibits its adequate use with all the indigent sick. It has been impossible for those making salvarsan or its equivalent in this country to supply the drug directly to the profession because of the patent laws. The Adamson bill, however, which has just passed House and Senate, authorizes the President to license American citizens to prepare and market products patented by alien enemies, and provides for the payment of 5 per cent. of the gross receipts to be deposited in the United States Treasury until the end of the war. The Dermatological Laboratories have made application for license to distribute arsenobenzol. Over 125,000 doses of this drug have been used already in the United States. It is our purpose progressively to lower its price, that it may be freely available for the indigent sick. We propose as soon as licensed to place arsenobenzol on the market at $1.50 to physicians, and to hospitals in larger sized ampules at such a price that an individual dose may be administered for about 80 cents. The adequate use of salvarsan on the ambulatory dispensary patients is of vital importance in the stamping out of contagious syphilis."

Dr. H. M. Christian believed that we must protect the man in the Army from the result of his own immorality, for the benefit of the service and his associates. "That which is of vital importance is prophylaxis; and I regret," he said, "that more emphasis was not placed on the prophylactic treatment of men on their return to camp. Statistics tell us that when prophylaxis is carried out as a routine, the percentage of development of venereal disease has been very small. Prophylaxis is not a compromise with evil, as so many regard it. We as physicians have no discussion here of morals; we are interested in the safeguarding—at this of all times—of the health of our Army. It is all very well to give these men instruction and entertainment, but far better to my mind to safeguard them by enforced prophylaxis."

Colonel Goodwin said in closing that he did not think the soldier is more immoral than men of the same class in civil life. We can do an enormous amount to keep him away from the opportunity of getting venereal disease, and the measure which has helped more than anything else in the Army to carry this out is the increased facilities for amusement. In this connection the Y. M. C. A., he believes, is of utmost importance.

CLINICAL CONGRESS OF SURGEONS OF NORTH AMERICA

"War Session"

SECOND EVENING

The second evening session was held in the Gold Room of the Congress Hotel, Tuesday, October 23. The meeting was called to order by the president, Dr. John T. Clark.

Symposium: Sanitation and Sepsis

THE WORK OF THE ARMY SURGEON

Surgeon-General Gorgas introduced the general subject of the work of the military surgeon. He said his personal experience in military surgery was nil; he had been in service for forty years, but during that time we had been involved only in the Spanish-American War, and since that time military surgery had been practically born over. This war has demonstrated the fact that we shall have to add enormously to the procedures that will have to be adopted before victory comes. The whole situation revolves on the question of sepsis. The endeavor of the military surgeon should be to get at the wound as quickly as possible and render it free from infection as soon as he is able. The principal rôle of the administrator will be to get the men at the earliest practicable time, and with this object in view we should have our hospitals as near the front line as possible. All our plans will be bent toward this end.

THE WORK OF THE NAVY SURGEON

Surgeon-General Braisted said it was impossible in the time allotted him to give a compresensive idea of what had been done, or of the problems and the enormity of the task before us. He called attention to the enormous increase in the number of enlisted men in all departments of the Navy, and to the fact that the medical department must also look out for all the men engaged in the construction work for the Navy, which made the total between a fourth and a half million people for whom the Navy was responsible. There were formerly 394 medical men in the Navy; there are now 828 in the regular service, this being the full authorized strength of the corps. They were obtained through a campaign which was instituted in the Class A men of the large medical schools of the country, and are a credit to every one. The Navy has twelve hospital units organized under and in conjunction with the Red Cross, and five small naval stations, the majority of which are rendering service. Four excellent hospital training schools are maintained by the Navy, and there are sometimes 100 men in training. Two ships are being transformed into hospital ships, and one is being built from the keel up as a hospital ship that is of a type never before contemplated in the history of the world. The Navy is well equipped in every way and able to meet every demand that may be made.

IN THE TRAINING CAMPS

Col. E. L. Munson, M. C., U. S. Army, in charge of the medical officers' training camps, told of these splendid camps that have been established for medical officers. There were approximately 500 medical men at the outbreak of the war who were capable of playing the medical war game as it should be played. The law authorized seven medical men per thousand, but experience abroad has shown that ten per thousand is better. The corps has been increased until now the doctors and dental surgeons alone outnumber the whole Army of the United States when it went to war with Spain. The Surgeon-General was confronted with the problem of training these men, and at once secured authority to establish training camps for this purpose. There are now three of these camps, besides one for negro officers and one for the Ambulance Corps. The training is at first physical, for the average doctor who comes in is in need of vigorous training to fit him for the tasks ahead. He is trained as a soldier until he can go as far as the rest in every way, and stand a full days' work beside. He must be taught how to do everything necessary, for he will have to tell others how to do it when actually in service.

Col. Munson's talk was illustrated by lantern slides and moving pictures showing the life in the camps.

MILITARY LABORATORIES

Col. F. F. Russell, M. C., U. S. Army, director of laboratory activities, spoke of the necessity of having well equipped laboratories that could be operated on the same principles that are now carried out only in the larger cities. New laboratories are now to be established at all cantonments and in general hospitals at the posts throughout the country. Those at the cantonments must be able to carry on the work of a community of from 20,000 to 50,000 people. The difficulty in securing supplies and apparatus is now being met; the principal articles have been delivered at all cantonments; and additional supplies will be furnished as rapidly as possible. A great many women laboratory workers have offered their services, and will be used as civil service employees as the need arises. Two classes of work will be done: clinical pathology for diagnosis in connection with the camp hospitals, and the routine examination for typhoid carriers, hookworm carriers and infectious diseases. The laboratories will also prepare all the vaccines and serums necessary for all the work done in the cantonments, and hope to do all the work that is now being done in the best institutions in a city. Much work has already been done in the new diseases of the war—trench fever, trench jaundice and gas gangrene. Many research institutions have offered their services, and all who have worked under General Gorgas have complete confidence in the future of the Medical Corps under his charge.

Gunshot Wounds and Their Treatment

Sir Berkeley Moynihan, Leeds, England, was sure that surgeons who were called on at the outbreak of this war to treat gunshot wounds in men coming over from France were never likely to forget their experience. They had occasionally encountered cases of suppuration, but never in the experience of medical men in our generation had cases of virulent infection like these been seen. The surgeons were scoffed at and told that they had never learned the lessons that Lister has spent his life in teaching, or, having learned them, had made haste to forget them. On reviewing Lister's books he found that he clearly distinguished in every one of his writings between the prophylactic work of antiseptics and their therapeutic values. The original idea of the antiseptic system was the exclusion of all microbes from the wounds, and the more or less successful attempt to restore wounds already septic to the aseptic state, so it was no just tribute that was brought against the surgeon when he was told that Lister had lived in vain and that aseptic surgery had fallen grievously to the ground.

Sir Berkeley described the way in which a German rifle bullet travels, and the different types of wounds made by it. The soldiers claim that the enemy uses an explosive bullet; and he said that while he knew the kaiser could use every iniquity that could possibly pay, and every kind of infamy if it pays at the moment to do it, he does not use the explosive bullet because it lacks the accuracy of aim that is present in the one he does use. One effect of the utmost importance produced by this bullet as it charges its way heavily and clumsily through the tissues, with the terrific momentum of 1,000 meters per second, is that it not only tears apart the tissues but also kills them by means of its terrific velocity. It also drives into the tissues everything with which it comes in contact; and if a bone is encountered, every tiny fragment becomes a projectile in itself and is driven into the tissues all around. These bullets have been shown to penetrate not only the body of one man but also the bodies of two, or even three, in succession. It is interesting to know that you may take the parts of one man out of the wound of another man through whom the bullet has passed. A part of a pocketbook of one man may be driven into the side of another, and the golden sovereigns in the hip pocket of one man may be removed from the buttock of the man who stood behind him. During the last two years, wounds produced by high explosives and shrapnel have increased in number. A gunshot wound depends for its qualities not only on the missile which is used but also on the man whom it meets. "It is impossible to exaggerate the intimacy of the contact between the soldier and the soil on which he is fighting." Flanders is probably the most highly cultivated region in all of France, the soil having been fertilized and refertilized for many years, with the result that the mud is of a particular bacterial malignancy. All the kinds of infection that occur in gunshot wounds are those which come from the fecal bacteria found in this soil, the streptococcus and bacillus of Welch being the most frequent. The men receiving these gunshot wounds are weary almost beyond endurance, are suffering shock, and all the circumstances both local and constitutional are in favor of a rapidly spreading infection. From a surgical point of view it is evident that there should be brought together at the earliest possible moment after the infliction of the wound the wounded man and the best surgical help that is available. This means that we want the best surgeons who are young at the most advanced point in the service to which it is safe to send them, and where they can have all the material surroundings which make for safety in surgery. The one thought should be to obtain complete closure of the wound at the earliest possible moment, either by primary or by secondary closure. Primary closure consists in excising the wound as completely as possible and in one piece, in order to avoid the reinfection of the new wound that the operator is making. This is capable of being carried out in a very large proportion of cases if the surgeons have the courage to do it, probably in 80 or 90 per cent. of the suitable cases. The principles and ideals for which to strive in badly infected wounds are to bring in larger quantities and on a rising tide the swarm of leukocytes into the wound, and perhaps to increase their activity by vaccine therapy, or to make use of the increased antitryptic power of the blood in very grave infection; and there must be complete immobilization, to prevent movements which carry poisonous bacteria into the blood.

Regarding antiseptics, Sir Berkeley said that from a military point of view the Carrel-Dakin method was an extremely difficult one to practice. Many people think a large part of the success of this method is due to the fact that the patients are received early, are placed at once under this careful, rigid technic, and are retained for long periods. The great fault of the Carrel method is that if it breaks down it fails lamentably. It has never taken hold in a wide area of the French Army, and in England has rarely been accepted as the method of choice. The Carrel method has, in his judgment—"speaking with the utmost respect of the work that Carrel has done for many years past"—achieved its greatest successes in cases in which it need never have been used. A second method was introduced by Rutherford Morrison, and has been used by him for two years. It consists in the free, mechanical exposure of all parts of the wound, the scraping away of all granulation tissue, and the removal of all dead and seriously injured portions and all fragments of bone; then the wound is dried with gauze, and "a very thin smear of what Sir Rutherford calls by the perfectly hideous name of 'bipp' is applied to all the surfaces." Bipp consists of bismuth, one part; iodoform, two parts, and petrolatum, one part. The wound is then stitched up without drainage, immobilized, and left for ten days. These patients do amazingly well; but Sir Berkeley has found by much experience that they do equally well when he "bipps them without bipp." He has since persuaded Morrison to try treating some of his cases without bipp, and had his authority to say that they had done just as well without it as any he had ever treated with it. "With a patient sent back from France with a compound fracture, with suppuration beyond anything ever seen in civil life, these cases can be opened up, curetted, the dead bone removed, and in three weeks can be healed completely, the bone united without any antiseptic whatever having been in contact with the wound, either at the time of closure or at any other time." He thought it did not make much difference what was done to the wounds, provided there is a free, mechanical cleansing, and a careful, scrupulous, rigid technic.

In closing, Sir Berkeley said: "The question is still very open. The last thing that any one must do is to imagine that a method for treatment of wounds has finally, by the industry and immense capacity for research, been found either by Carrel or by Morrison or by Browning with his flavine compound, or by any one else. The one certain thing is that if you get your patient early, if you operate ruthlessly, taking away all dead and contaminated tissues, you will find that you can get an early and a perfect healing of that wound by first intention. And if you cannot get that early access to your patient, and see him only when a definite infection is soundly established in all parts of the wound, then again the essential thing is the free, mechanical exposure and cleansing of all parts of the wound; and having done that you may do such other things as you care to try. One method is as good as another, and no method the equal of any; but the two things that have come out from all this exhaustive inquiry and most painstaking care of patients is that the primary essential is freedom of exposure of all parts, thorough cleansing, and from first to last the most absolute immobility that you can impose on any wound of the parts. It is just as important, or more important, to immobilize as firmly and as rigidly as you can a wound of the soft parts of the body as a compound fracture of the bone."

DISCUSSION

Major George W. Crile, in discussing Sir Berkeley's paper, said that he had found practically all of his preconceptions concerning surgery to be wrong. The missiles produced the most extraordinary wounds; and the one that surprised him as much as any was that the supermud acted as a missile in itself. A high explosive shell would dive into the mud and throw the mud with such tremendous velocity that it would actually cause a penetration of the skin; and through that hole a vast amount of mud would be forced, producing a very bad type of wound, and in some instances death. He agreed with Sir Berkeley as to complete wound excision, and had found that the incision must be much larger than he had ever expected to make; but in time one gets to know that when the tissues cut in a certain way one has gone to a point at which there is a good resistance established. He reflected Sir Berkeley's opinion that physiologic resistance is the biggest single factor in the healing of the wound.

As to antiseptics, the Lakeside Unit took with it a complete outfit for carrying out the Carrel-Dakin technic, use it now in their base hospital, and have also thrown teams forward into the front area. Their experience has been practically the same as Sir Berkeley had intimated; if there is plenty of help and if well done, the wounds do beautifully. He had never seen any wounds do better than those in which a typical and perfect Carrel technic has been carried out from beginning to end without a slip. But the moment one is confronted with the problems presented in the front area, it is absolutely impossible to carry out any complicated technic. The period of contamination is the first twelve hours, and after that the wound goes into the period of infection. The patient should be operated on in the period of contamination, before infection begins. When he first heard of "bipp" there were three reasons why he doubted whether it would be good; first, it contained bismuth; second, it contained iodoform, and, third, it contained petrolatum. He was surprised to find that the patients did very well, but it is necessary to use it lightly and then give perfect physiologic rest. Like Sir Berkeley, he had found that they also do well without bipp. He was sure that the ideal antiseptic for war surgery had not been found. He thought it was true that for men who were carefully trained and taken away from all the problems of an ordinary civil existence, the work in the camp and the simple physiologic business of fighting were to the advantage of the men. These men become vigorous, and present an entirely different problem as to infections than the average civilian. Who would think in civil life of attacking a wound in the knee joint, washing it out with salt solution, and closing it up without drainage? As a matter of fact, 70 per cent. of the wounds so treated get on without any trouble whatever. In large chest wounds of all sorts and descriptions, they open the chest widely, take out foreign bodies and remove the blood, close up the wounds tight without drainage, and nearly all of them heal without any infection. They are not dealing with the same type of physiologic resistance in the well trained, selected individuals who are soldiers as they are accustomed to deal with in the civilian population. Gas gangrene has been practically mastered by learning that it attacks principally the muscles; if they are excised there is practically no spread of the disease. It has now almost disappeared from the acute casualties. In the wounded who lie out in "No Man's Land" for two or five or ten days, it has been found that the wounds that have done best are those that contain maggots. The reason for this is that there is devitalized tissue; the maggot lives on this devitalized tissue, and if it destroys that tissue it does in time what the surgical operation does. He believed it was in the power of General Gorgas to do the greatest task of surgery for our armies if he could carry out his plan to have our hospitals out near the front so that our soldiers can be brought in early, and receive the necessary care at the hands of good surgeons. That would amount to more than all the antiseptics one could muster in all the world.

Dr. Edward Martin, Philadelphia, said they had been advised by one eminent member of the profession to take all the antiseptics and throw them into the sea, and another had advised them to raise a brood of tame maggots to take care of wounds. What Sir Berkeley had done most of them could not do; what they were after was what they could do best for the good of the Army; and the majority still believed that there was a germicide that kills the germ and that was what they were after. They are still searching for the best and least injurious. Now Dakin thinks he has found it, and he has asked Lee to make a trial of his preparation; the results have been very good. They had been taken to the gentlemen of the Army and Navy, and they had detailed Dr. Furness and Dr. Lee to carry on the research. They had selected surgeons with large hospital and industrial plants, and the reports were enthusiastic with the exception of Boston—and that was in its favor. He advised that we await the outcome of these experiments before throwing away all antiseptics and treating every wound with courage and the knife and nothing else.

Dr. E. H. Dunham said that as a result of laboratory investigations it appears that there are three things to know about an antiseptic: the speed of disinfection, the stability of the antiseptic, and the degree of concentration in which that antiseptic can be used. There are three classes of hypochlorids: the Dakin solution, chloramin-T and dichloramin-T. Chloramin-T is soluble in water, and dichloramin-T is not. There is an enormous difference in the speed of disinfection, and that is an important element. The next point was the stability of the disinfection; the chlorid antiseptics are very unstable. He explained the action of the chlorins, and in closing said that if one could have a rapidly acting antiseptic that was not so unstable that it would keep up its action for a long time, it would be a real help.

Dr. W. Estell Lee, Philadelphia, reported 7,228 cases in which dichloramin-T has been used, and said it had also been used in many war wounds in France. From this clinical experience the conclusions offered in the first report had developed into firm convictions. Their experience shows that the chlorin preparations have proved superior to all other antiseptic preparations. However, if used for any length of time, they produced marked irritation of the skin; various modifications, therefore, were tried, and the best had been that suggested by Dakin. The original solution was very unstable, and had to be prepared almost daily. It contained such a small germicidal agent that it was necessary to have it at all times in contact with the wound. It was necessary frequently to renew the solution every two hours day and night. Most of these faults have been overcome by the development of a beautiful and complicated technic which consumes a great deal of time on the part of the surgeon and nurse, and an unnecessary expense for both apparatus and dressing material. They made a search for a new antiseptic, and Dr. Dakin had asked them to try out dichloramin-T. By the use of oil as a menstruum, a large amount was brought into contact with the infection in such a manner that it was slowly infused into the tissues; and during this period its action is in all respects equal to that of the chloramin compound. This eliminated at the start the necessity for the complicated Carrel technic. The results of these clinical tests have been the realization of Dakin's hopes.

Dr. Lee gave the results obtained in a vast number of wounds of various sorts, and showed lantern slides demonstrating the method of applying the solution and the dressings, emphasizing the economy in dressings required. By this means they are able to treat eighty patients in an hour at their clinic, and have handled 100 in an hour on certain occasions. They use less than one fourth of the gauze formerly used, less than one tenth of the bandages, and have cut down the time of healing from fourteen days to ten.

Dr. William O'Neill Sherman spoke in defense of the Carrel method, and said if the impression was allowed to prevail that antiseptics have no use there is no use in going to France. We could simply let them put on a bandage over there and send the boys home. He had spent five months in France and England, and every man in France and England was infected. Carrel's hospital was 8 miles back from the lines, but not a man was infected who had received this treatment, and there was not a drop of pus. He spoke of the work of Chutro, who had 300 beds in Paris and was using this method with good results. Dr. Sherman exhibited lantern slides showing wounds of various sorts at different stages under treatment by the Carrel method.

Evening Session, October 24

This session included the presidential address on "The Use of Radium in Gynecology," by Dr. John G. Clark, Philadelphia, and a symposium on "Military Surgery and the Specialties." The heads of the various special departments organized by the Surgeon-General's Office outlined the work that these departments expect to undertake, and described what has already been done.

Evening Session, October 25

Surgery of the Spinal Cord

Dr. Charles M. Frazier of Philadelphia read a paper on surgery of the spinal cord, dealing largely with the neurologic problems encountered. In discussing the paper, Dr. Allen B. Kanavel, Chicago, said he was well acquainted with the excellent course of instruction being given to the neurologic service, and was certain that before the war had begun for us we shall have a corps of men trained to do this work to the credit of the entire profession of America. He thought he could best discuss the subject by drawing attention to a few cases in which he has been permitted to perform a laminectomy. He showed lantern slides of several cases, and said he was convinced that the best time to operate was after the patient has recovered from shock.

Surgery of the Stomach

Major William J. Mayo, M. R. C., U. S. Army, Rochester, Minn., stated that 30 per cent. of all cancers of civilized man are in the stomach, and that this condition is uncommon in primitive man and in the lower animals, although there is no mechanical and secretory difference in the construction of the stomach. He believed that chronic gastric ulcer is not often cured medically, and is not seldom a source of cancer. He called attention to heat as a source of irritation, and was of the opinion that cancer occurs more frequently in man than in woman because man is in the habit of taking his food and beverages hotter than the average woman does. Woman sits at the foot of the table and pours the tea and coffee, serving the men of the household first and drinking hers after it has cooled somewhat. In the Chinese the same rule holds true with the rice that is eaten, for the women eat at the second table.

In closing, he said that food and drink should not be taken into the stomach hotter than can be borne comfortably in the mouth. The mouth and the throat are protected by sensitive nerves, but the stomach is not. Early diagnosis of cancer depends on the roentgen examination. The antecolonic end to side anastomosis between the stomach and jejunum greatly accelerates closure. The results of operation for cancer of the stomach are now fairly good and are improving; 38.4 per cent. are cured.

DISCUSSION

Dr. A. J. Ochsner, Chicago, said we were impressed at once with the fact that a condition to which every one is exposed is an important condition in the production of this most fatal of all diseases. We have known for a long time that there is no superficial cancer anywhere which occurs without preliminary irritation, and that this preliminary irritation gives rise to disturbed circulation. He was of the opinion that human beings are afflicted with cancer because they are manure eaters. We fertilize our soil, and in that way take unclean food into the stomach which produces an irritation. Cancer occurs most frequently at the point at which there is interference with the circulation, and he was convinced that this was a large factor in its production; and that smoker's cancer occurred most often on the lower lip because the circulation was interfered with owing to the weight of the pipe. Although we have not yet found the organism that causes it, we have found the condition that makes it possible for this agent to live successfully under these conditions. He thought we should endeavor to avoid all irritation, stop boiling our insides, and at the same time insist on having clean food to put inside the alimentary canal. He was sure that when that was done there would be an enormous decrease in the amount of cancer.

Dr. L. L. McArthur, Chicago, agreed with Dr. Mayo that irritation was a predisposing cause to cancer, and was convinced that irritation made a doorway through which the infective element finally gains access. This atrium he has called attention to in various ways. He was sufficiently neutral to call Dr. Mayo's attention to the fact that the male stomach in Germany has the same frequency of infection as the female, and yet in Germany the man sits at the foot of the table and pours the tea and has his cold. Cancer of the skin has been shown to be due to the yeast plant, and has been sloughed off from the great group known as cancer proper. He thought the great lesson to be learned was that the operation formerly considered as formidable is being lessened, and that the extent of the operation continually grows. When hearing Dr. Mayo's remarkable statistics that 38.4 per cent. were cured in the understanding of the term that for three years they have lived and were free from evidence of other disease, we are not to deduce the fact that this represents the mortality of the stomach when operated on, but only as the mortality which followed selected cases—not cases selected to improve the statistics to be presented to a medical society, but selected cases in which operation can be performed with reasonable hope of success. The diagnosis is very difficult in many cases even after the abdomen is opened, and when the diagnosis is made, even then the prognosis cannot be accurately prognosticated.

He called attention to an operation for putting the stomach at rest after operation, especially in cases of cancer of the stomach complicated with gallstones, by inserting a tube into the gallbladder and bringing it outside the abdomen. In this way the bile is prevented from getting into the bladder, salt solution can be introduced into the duodenum, the intestines can be flooded, and the patient can be made much more comfortable.

War Surgery of the Lungs and Pleura

Sir Berkeley Moynihan, Leeds, England, read an exceedingly interesting paper on this subject, recounting the experience of himself and others, from which he drew the following conclusions:

1. The approximate mortality from gunshot wounds of the chest, after the patients get into the hands of the doctors, is 20 per cent.
2. Causes of death are hemorrhage, as a rule within from eighteen to forty-eight hours, sepsis beginning after the third or fourth day.
3. Local conditions in the wounds of the chest wall and lung are in all respects similar to those in wounds elsewhere; the missiles are the same, destructive elements the same, and infective organisms the same.
4. The lung tissue is more resistant to attack than many other tissues. The opening of the cavity and the exposure of the contents add a danger of the most threatening character.
5. The chief essential in the treatment of all penetrating wounds of the chest is rest.
6. In clean wounds of the chest, rest together with dressing of the wounds of entrance and exit will lead to recovery in the great majority of cases.
7. In cases of open thorax, the earliest and most complete effort must be made to secure closure of the wound.
8. In grave cases of hemorrhage when blood escapes from the wound, the wound in the lung must be treated by suture or by plugging of the cavity from which the blood escapes.
9. When the blood is sterile and remains so, no operative procedure is necessary.
10. In cases of hemothorax in which the blood remains sterile, aspiration after the tenth day certainly hastens convalescence and permits expansion of the lung and free movements.
11. In cases of hemothorax, whether the amount of blood is small or large, when infection takes place operation is necessary. Early operation, whether the Carrel or the Morrison method is adopted, saves many weeks of convalescence and permits functional recovery.
12. Small rifle bullets or other projectiles in the lung often cause no symptoms, and may be safely removed.
13. Large foreign bodies may cause symptoms, and in such cases they should be removed. Pieces of metal so removed, whatever the period of time has elapsed since their introduction into the wound may be, are almost always found to be infected.

ORDERS TO OFFICERS OF THE MEDICAL CORPS

Alabama

To Atlanta, Ga., Medical Supply Depot, for duty as assistant, Capt. ROBERT E. HALE, Bellamy.

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieuts. MOSES E. SHERRER, [illegible]; MANNIE A. FORT, Grand Bay; FRANK H. McCONNICO, [illegible]; JOHN F. JENKINS, GILMER H. MOORE, Opelika; JULIUS F. PEAVY, JR., Robertsdale; JAMES W. BEARD, Troy; MAXWELL MOODY, Tuscaloosa; BRYANT B. EDWARDS, Union Springs.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieuts. WILLIAM C. DABNEY, Birmingham; FRANK W. YOUNG, Hartford.

To Camp Hancock, Augusta, Ga., for temporary duty, from Fort Oglethorpe, Lieut. JULIAN K. LEGARE, Forkland.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. WILLIAM E. SHERMAN, Albertville.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. ANDREW L. GLAZE, JR., Athens; CHARLES W. BRASFIELD, Linden; JAMES P. VANSANT, Piedmont; DANIEL W. WARD, Tuscaloosa.

To Camp Pike, Little Rock, Ark., for duty from Fort Oglethorpe, Lieuts. SOLON W. WRIGHT, Bessemer; ORLANDO V. LANGLEY, Loachapoaka; CHARLES D. MASON, Scottsboro; JAMES H. SOMERVILLE, JR., Tuscaloosa.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieuts. BEAMAN S. COOLEY, Boaz; WILLIAM A. SEWEL, Center; HORACE VAN DE VOORT, Gastonburg; WALTER E. ALLEN, Ward.

To Camp Wheeler, Macon, Ga., and report to commanding officer of the base hospital for temporary duty, Lieut. EDWARD C. HAGLER, Northport.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Capt. WILLIAM H. OATES, Mobile; Lieut. AUSTIN F. J. BOYD, Emelle.

To Fort Oglethorpe, for instruction, Lieut. WILLIAM M. CAFFEE, Edgewater.

Arizona

To Fort Oglethorpe, for instruction, from School of Military Roentgenology, Los Angeles, Capt. WILLIAM H. SARGENT, Phoenix.

Arkansas

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. MORGAN C. BERRY, Donaldson; ROBERT E. WEAVER, Hope.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. IRA W. ELLIS, Monette.

To Camp Grant, Rockford, Ill., for duty in the division of ophthalmology, section of surgery of the head, Capt. JOHN H. HARVEY, Waldron.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. JOHN B. WELLS, Scott.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. EDWARD R. COTHAM, Monticello.

To Rockefeller Institute, New York, N. Y., for a course of instruction in laboratory work, from Fort Oglethorpe, Lieut. JOHN C. SIMPSON, Hamburg.

California

To Army Medical School, Washington, D. C., Lieut. CLYDE E. SHEDD, San Francisco.

To Camp Greene, Charlotte, N. C., base hospital for temporary duty, Capt. GUSTAV J. BERGENER, San Francisco.

To Camp Kearny, Linda Vista, Calif., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. OSCAR O. YOUNG, Garden Grove.

To Camp Lee, Petersburg, Va., for duty in his specialty, Major JAMES R. MOORE, Los Angeles.

To Fort Bayard, N. M., for duty, Lieut. ROBERT C. KIRKWOOD, Alta.

To Fort Oglethorpe for instruction, Capt. THOMAS W. O'REILLY, Los Angeles; Lieut. ANDREW B. WESSELS, San Diego.

To Letterman General Hospital, San Francisco, Calif., for duty in his specialty, Capt. FREDERICK E. ALLEN, Hayward.

To Los Angeles, Calif., for a course of instruction in military roentgenology, Lieut. ORRIN S. COOK, San Francisco.

To New York, N. Y., for orthopedic instruction, from Army Medical School, Washington, D. C., Lieut. JOSEPH R. JONES, Yreka.

To report by telegraph to the commanding general, Western Department, for assignment to duty, Capt. HENRY E. MORRISON, Dixon; Lieut. LOUIS A. FRARY, Oakland.

To the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Camp Kearny, Lieut. HARRY F. WORLEY, San Diego.

Colorado

To Honolulu, Hawaii, Dept. Hospital for duty, from Schofield Barracks, Lieut. RAY L. DRINKWATER, Denver.

Connecticut

To Camp Cody, Deming, N. M., for duty in connection with orthopedic work, Capt. JAMES C. WILSON, Hartford.

To Camp Devens, Ayer, Mass., for temporary duty, Capt. FRANK P. TODD, Danielson; for duty, from Fort Benjamin Harrison, Lieut. ULRIE PLANTE, Hartford.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. FRANCIS J. CARROLL, Bridgeport.

To Fort Oglethorpe, for instruction, Capt. JAMES L. MORIARITY, Waterbury.

District of Columbia

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieuts. CHARLES BELL, Washington, D. C., WILLIAM O. WETMORE, Washington, D. C.

To Camp Sevier, Greenville, S. C., for duty from Fort Oglethorpe, Lieut. GEORGE Y. MacMURPHY, Washington, D. C.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieuts. HOWARD W. BARKER, Washington, D. C.; HARRY M. PRICE, Washington, D. C.

To Philadelphia, for a course of instruction in orthopedic surgery, Lieut. JOEL A. TILTON, Washington, D. C.

To Washington, D. C., and report to the Surgeon-General of the Army for duty in his office in connection with the division of brain surgery, section of surgery of the head, Lieut. HARRY H. KERR, Washington, D. C.

Florida

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieuts. JOHN M. WHITFIELD, Malone; HAROLD M. BEARDAL, Orlando; FRANK P. HIXON, Pensacola; DREW R. HANDLEY, Raidford; EARLE H. McRAE, Tampa.

To Camp Greene, Charlotte, N. C., for temporary duty, from Fort Oglethorpe, Lieut. GASTON DAY, Jacksonville.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. DWIGHT G. RIVERS, Lake City; BALDWIN S. STUTTS, Pt. St. Joe.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. HARRY C. GALEY, Key West; DANIEL B. WILLIAMS, South Jacksonville.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. CHARLTON C. WHITTLE, Nocatee.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe. Lieuts. JOHN D. GRIFFIN, Lakeland; RICHARD LEFFERS, Lakeland.

To Camp Wheeler, Macon, Ga., for duty, Lieut. NECY L. GACHET, Century.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. ARCHIE C. WATSON, Live Oak.

To Linda Vista, Camp Kearny, Calif., for temporary duty, from Camp Cody, Deming, N. M., Capt. RAYMOND B. McLAWS, Tampa.

To Mincola, L. I., Hazelhurst Field, for duty with the 201st Aero Squadron, Lieut. JAMES L. PENNINGTON, Fountain.

Honorably discharged from the Medical Reserve Corps of the Army on account of being physically disqualified for active service, Lieut. DANIEL M. ADAMS, Panama City.

Georgia

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieuts. STEPHEN T. BROWN, Atlanta; JAMES H. BUTLER, Augusta, Ga.; WHITFIELD W. CROOK, Cuthbert; LOWNDES W. SHAW, Savannah.

To Camp Lee, Petersburg, Va., for duty from Fort Oglethorpe, Lieuts. LESLIE L. BLAIN, Marietta; HUGH W. WADE, Quitman.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. A. NATHAN DYKES, Columbus; JOHN F. BURKHALTER, Morven; HARRY C. WILLIS. Rome.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. DeLAMAR TURNER, Milledgeville; BURTON P. BRADLEY, Rome.

To Camp Wheeler, Macon, Ga., for temporary duty, from Fort Oglethorpe, Lieut. CYRUS K. SHARP, Arlington.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. JAMES T. CALLOWAY, Atlanta.

To Mincola, L. I., Hazelhurst Field, for duty with the 200th Aero Squadron, relieved from present duties at this Field, Lieut. THOMAS E. BLACKBURN, Swainsboro.

To Philadelphia, for orthopedic instruction, from Fort Oglethorpe, Lieut. EVERARD A. WILCOX, Augusta.

To Rockefeller Institute, for a course of instruction, from Fort Oglethorpe, and when course is completed to return to his proper station, Capt. GEORGE A. TRAYLOR, Augusta.

To his home and return to the inactive list of the Medical Reserve Corps of the Army, on account of being physically disqualified for active duty, Lieut. JOHN W. BRADLEY, Woodstock.

Idaho

To Fort Riley, for duty, Lieut. DONALD S. NUMBERS, Parma.

Illinois

To Army Medical School, for a course of instruction, Lieuts. HENRY A. RASMUSSEN, Chicago; JOE H. ST. JOHN, Chicago.

To Camp Devens, Ayer, Mass., for duty with the surveying and printing company, from Fort Benjamin Harrison, Lieuts. FRANCIS W. McNAMARA, Chicago; EDGAR A. SMITH, Chicago.

To Camp Doniphan, Fort Sill, Okla., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Benjamin Harrison, Lieut. EDWARD G. SEPPLE, Chicago.

To Camp Funston, Fort Riley, for temporary duty, from Medical Officers Training Camp, Lieut. JAMES S. CLELAND, Swanwick.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieut. WALTER D. MURFIN, Vernon.

To Camp Grant, Rockford, Ill., for duty, Capt. HARRY S. GRADLE, Chicago. For duty in the orthopedic service, Lieut. PHILIP LEWIN, Chicago.

To Camp Jackson, Columbia, S. C., and report to the commanding officer of the base hospital for temporary duty, relieved from present duties at this camp, Lieut. ALFRED STOCKEN, Rock Island.

To Camp Lee, Petersburg, Va., and report to the commanding officer of the base hospital for duty in the venereal disease section. Relieved from his present duties at this camp. Capt. WILLIAM T. WILLIAMSON, Lexington.

To Camp Lewis, American Lake, Wash., for temporary duty, Lieut. HYRUM Y. RICHARDS, Chicago.

To Camp Pike, Little Rock, Ark., for temporary duty in conducting examinations in his specialty, Capt. MAURICE L. GOODKIND, Chicago; for duty from Fort Oglethorpe, Lieut. VINCENT F. KELLER, Chicago.

To Cornell Medical College, New York, N. Y., for instruction in military roentgenology, Lieut. ARTHUR E. ROGERS, Bloomington; Lieut. RUSSELL M. JOHNSON, Chicago.

To Fort Benjamin Harrison, for duty, relieved from duty at the Medical Officers' Training Camp that camp, Lieuts. WILLIAM F. GRAYSON, Granite City; MYRON W. SNELL, Litchfield.

To Kelly Field, South San Antonio, Tex., for duty Fort Riley, Lieuts. SIGURD H. KRAFT, Chicago; ROBERT C. MURPHY, Mt. Greenwood.

To Mincola, L. I., Hazelhurst Field, for duty, from Fort Riley, Lieut. ROLLEN E. HARROD, Avon.

To his home and return to the inactive list of the Medical Reserve Corps on account of being physically disqualified, Lieut. ADRIAN J. DeHAAN, East St. Louis.

Honorably discharged from the Medical Reserve Corps of the Army, Lieut. GEORGE L. SAMUELS, Alton, Lieut. THADDEUS S. PIERZYNSKI, Chicago.

Indiana

To Army Medical Service, for duty in the bacteriologic laboratory, from Rockefeller Institute, Lieut. WEIR M. MILEY, Anderson.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieuts. CHARLES C. CRAMPTON, Delphi; RAY H. THOMAS, Indianapolis; WILLIAM R. PHILLIPS, Orange.

To Camp Dodge, Des Moines, Ia., for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. ALBERT G. KINBERGER, Galena.

To Camp McClellan, Anniston, Ala., and report to the commanding officer of the base hospital for duty, relieved from present duties at this camp, Lieut. ARTHUR F. WEYERBACKER, Indianapolis.

To Camp Pike, Little Rock, Ark., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieuts. WALTER McBETH, Burnetts Creek; for duty, from Fort Oglethorpe, EDWARD E. EVANS, Gary.

To Camp Taylor, Louisville, Ky., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieut. MILES F. DAUBENHEYER, Butterville.

To Camp Travis, Fort Sam Houston, Tex., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieut. GEORGE L. MARSHALL, Bourbon.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. EDWIN W. RODENHEISER, Indianapolis.

To Gettysburg, Pa., Reorganization Camp, for duty from Fort Ontario, N. Y., Lieut. ARVINE E. MOZINGO, Tipton.

Honorably discharged from the Medical Reserve Corps of the Army, Lieut. ELMER D. MADDUX, LaCrosse.

Iowa

To Camp Dodge, Des Moines, Ia., for duty in connection with the division of oto-laryngology, section of surgery of the head, Capt. BENJAMIN G. DYER, Ames.

To Camp Grant, Rockford, Ill., for duty, Lieut. ELMER J. LAMBERT, Ottumwa.

To Camp Meade, Annapolis Junction, Md., for duty in connection with the division of oto-laryngology, section of surgery of the head, Capt. GEORGE B. WOOD, Sioux City.

[illegible] *Park, Ga.*, for duty, from Fort Oglethorpe, Capt. [illegible] TON, Mason City.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, from Camp Mills, Capt. THOMAS A. BURCHAM, Des Moines; Lieut. WALTER S. CHESTER, Britt.

To Mincola, L. I., Hazelhurst Field, for duty, from Fort Riley, Lieut. MAURICE C. HENNESSY, Council Bluffs.

Kentucky

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. HORACE T. RIVERS, Paducah, Ky.; Lieut. FREDERICK D. CARTWRIGHT, Bowling Green.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. ALBERT C. BOND, Ashland.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. JAMES H. PRITCHETT, Louisville.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. CHARLES L. VENABLE, Franklin.

To Camp Taylor, Louisville, Ky., for duty as plastic surgeon and consultant oral surgeon, section of surgery of the head, Major R. ALLEN, Hedges; to report to the commanding officer of the base hospital for duty in the surgical service. Relieved from his present duties at this camp, Lieut. JOHN B. RICHARDSON, JR., Louisville.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, for duty, Capt. RICHARD W. OGILVILLE, Princeton.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty from Fort Oglethorpe, Lieut. JOHN GALVIN, Louisville.

Louisiana

To Camp Dix, Wrightstown, N. J., for duty from Fort Oglethorpe, Lieut. LOUIS S. KUSHNER, New Orleans.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieuts. DANIEL O. WILLIS, Leesville; DANIEL W. KELLY, Winnfield.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. HARPER L. CROW, Elmgrove.

To Camp Logan, Houston, Tex., for temporary duty, Lieut. EDWARD B. F. FAGOT, New Orleans.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. DAVID I. HIRSCH, Monroe; ARTHUR G. HEATH, Shreveport.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. CLIFFORD P. RUTLEDGE, Shreveport.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. CHRISTOPHER L. MENGIS, Norwood.

To Camp Shelby, Hattiesburg, Miss., for temporary duty, Lieut. ROBERT E. WINDHAM, Merryville.

To Camp Sheridan, Montgomery, Ala., for duty in the laboratory of the base hospital, Lieut. JOSEPH R. D'AUNCEY, New Orleans.

To Seattle, Wash., for duty in connection with the standardization of examinations, physical examining unit, Lieut. LOUIS LEVY, New Orleans.

Maine

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieut. ALBION E. FLOYD, Mapleton.

To Camp Gordon, Atlanta, Ga., for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. LEON S. LIPPINCOTT, Brunswick.

Maryland

To Army Medical School, for a course of instruction, Lieut. JOHN C. WOODLAND, Crisfield.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieut. LESLIE G. TAYLOR, Perryville.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglesthorpe, Lieut. HORACE B. TITLOW, Baltimore.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglesthorpe, Lieuts. DAVID SILBERMAN, Baltimore; GEORGE M. BOYER, Damascus.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. MARTIN J. HANNA, Baltimore.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Lieuts. ALBERT G. SINGEWALD, Baltimore; CHARLES N. BRANIN, Hagerstown.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieut. Percy R. Fisher, Denton.

To Camp Sevier, Greenville, S. C., and report to the commanding officer of the base hospital for duty, relieved from present duties at this camp, Lieut. JOSEPH P. EIDSON, Baltimore.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. GEORGE H. REINHARDT, Baltimore.

To Rockefeller Institute, for a course of instruction in laboratory work, from Fort Oglethorpe, Lieut. JOHN F. LUTZ, Baltimore.

Honorably discharged from the Medical Reserve Corps on account of being disqualified for active service, Lieut. EDWARD P. SIMPSON, Chance.

Massachusetts

To Camp Devens, Ayer, Mass., for duty in the surgical service from Fort Terry, N. Y., Capt. ISAAC S. F. DODD, Pittsfield; for duty, from Fort Benjamin Harrison, Capt. GEORGE C. PARCHER, Saugus Center; Lieuts. HENRY M. EMMONS, Boston; JOSEPH SIMPSON, Essex; DANIEL J. GENNELLY, Fall River; FRANK H. SMITH, Hadley; for duty in charge of the subsection of brain surgery, section of surgery of the head, HOMER GAGE, Worcester.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. JOHN F. MAHONEY, New Bedford; WALTER A. JILLSON, Westboro.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe for duty, Lieut. JOHN J. O'DONNELL, Boston.

To Camp Wadsworth, Spartanburg, S. C., for duty as assistant to the chief of the medical service in the care of cardiovascular cases, Lieut. HILMAR O. KOEFOD.

To Fort Ontario, New York, for duty with Field Hospital No. 28, from Fort Benjamin Harrison, Lieuts. JAMES K. STODDARD, Boston; NATHANIEL W. FAXON, Stoughton.

To Neurological Institute, New York, for a course of instruction in his specialty, Lieut. JAMES A. GOULD, Westboro.

Mexico

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. EZRA A. LINES, Piedros Negros.

To Fort Oglethorpe, for instruction, from school of military roentgenology, Los Angeles, Lieut. WILLIAM B. WATTS, JR., Emplaine.

Michigan

To Army Medical School, for course of instruction, from Kelly Field, San Antonio, Tex., Capt. GORDON F. WILLEY, Kalamazoo.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. EDGAR C. DUNNING, Cassapolis.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieuts. FREDERICK J. BURT, Goodrich; WILLIAM H. ATTERBURY, Litchfield; IRA A. ABRAHAMSON, Negaunee; JULIUS H. POWERS, Saginaw; HUGH H. ANGLE, Snover; WILLIAM H. GALE, St. John's.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. ARCH S. CHAPMAN, Detroit.

To Camp Lee, Petersburg, Va., for duty, Lieut. GEORGE G. DIXON, Detroit.

To Mineola, L. I., Hazlehurst Field, for duty from Fort Riley, Lieuts. ROBERT S. IDESON, Ann Arbor; CHARLES S. BALLARD, Mason.

To Syracuse, N. Y., Reorganization Camp, for duty, from Fort Ontario, N. Y., Lieuts. GEORGE M. LOCHNER, Adrian; RALPH H. BOOKMYER, Detroit.

To his home and return to the inactive list of the Medical Reserve Corps of the Army, after completion of course at Rockefeller Institute, Lieut. JOHN T. HODGEN, Grand Rapids.

Minnesota

To Fort Oglethorpe, for instruction, Lieut. HAROLD W. STONE, Wayzata.

Mississippi

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. WILLIAM G. BYRD, Isola; CARLOS R. McKEE, Sandhill.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capt. ROBERT M. DONALD, Hattiesburg; Lieuts. JAMES Q. FOUNTAIN, Bay St. Louis; HARVEY T. CUMING, Gloster; WILLIAM S. CRANFORD, Laurel.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. DRYDEN I. WALKER, Vosburg.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. GEORGE H. SPIVEY, Hollandale; JOHN W. BRANDON, Pinckneyville.

To Camp Pike, for duty, from Fort Oglethorpe, Capt. JAMES A. SLACK, Friar Point; Lieut. NORMAN A. McLEOD, Brookhaven.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. MARCELLUS C. GARNER, Meridian.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, from Fort Oglethorpe, Lieut. JOHN G. BACKSTROM, Tutwiler.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieuts. JAMES L. PARKES, Carthage; JESSE D. WESTMORELAND, Water Valley.

Honorably discharged from the Medical Reserve Corps of the Army, on account of being physically disqualified for active service, Lieut. HASAC A. WHITE, Kirkville.

Missouri

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. EDGAR K. WELLS, Delring.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. REUBEN APPLEBERRY, Leadwood.

To Camp Funston, Fort Riley, for duty as a member of a board for the special examination of the command for tuberculosis, Lieuts. SAMUEL B. HIRSCHBERG, Kansas City; SOLON E. HAYNES, St. Louis; to report to the commanding general of that camp for temporary duty, Lieut. EVERETT R. DEWEESE.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. HENRY C. HAYS, Kansas City.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieut. WILLIAM J. EZICKSON, Webb City.

To Cornell Medical College, New York, for instruction in military roentgenology, Lieut. DUDLEY E. MACKEY, Clayton.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. PAUL M. KRALL, Kansas City.

To Washington University, St. Louis, for duty as instructor, Major VILRAY P. BLAIR, St. Louis.

To the inactive list of the Medical Reserve Corps from Fort Riley, Lieut. CLARENCE O. C. MAX, St. Louis.

Nebraska

To Atlanta, Ga., Dept. Laboratory, for duty, from Rockefeller Institute, Lieut. EDWARD H. McLEAN, Omaha.

To Camp Greene, Charlotte, N. C., for duty as a member of the tuberculosis board, from Camp Wadsworth, Spartanburg, S. C., Lieut. WILLIAM N. ANDERSON, Omaha.

To Camp Pike, Little Rock, Ark., for duty from Fort Oglethorpe, Lieut. OTTO E. LONGACRE, Loup City.

To New York, for orthopedic instruction, Capt. JOHN M. HENCH, Omaha.

New Hampshire

To Camp Lee, Petersburg, Va., for temporary duty, Lieut. JOHN C. ECKHARDT, Sanbornville.

New Jersey

To Camp Bowie, Fort Worth, Tex., for duty in the base hospital laboratory, from Rockefeller Institute, Capt. GEORGE C. ALBEE, South Orange.

To Camp Devens, Ayer, Mass., for duty from Fort Benjamin Harrison, Lieuts. ARTHUR J. ELLIS, Newark; LOUIS M. SUCHOFF, Paterson.

To Camp Dix, Wrightstown, N. Y., for duty, from Fort Oglethorpe, Lieuts. IRVING E. CHARLESWORTH, Bridgeton; ROBERT BUERMANN, Newark; SAMUEL A. VANDEWATER, Oradell; WILLIAM T. HILLIARD, Salem; HENRY J. HARP, Sussex; CHARLES M. GRAY, Vineland.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. CHARLES H. BALL, HOBOKEN.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. FRANK H. PINCKNEY, Morristown.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. DAVID BERNER, Atlantic City; MICHAEL VINCIGUERRA, Elizabeth; MAURICE S. AVIDAN, Newark; WILLIAM SATTERER, Newark.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. THOMAS S. McCABE, Newark.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. ELTON S. CORSON, Bridgeton; ORVILLE R. HAGEN, Paterson.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. RALPH H. HUNT, East Orange; Lieuts. ARTHUR G. HILLIARD, New Brunswick; EDWARD B. ROGERS, Collingswood.

New York

To Army School, for duty in the bacteriologic laboratory, from Rockefeller Institute, *Lieut. Manning C. Field, Brooklyn; for a course of instruction, Lieuts.* LEO. E. REIMANN, Buffalo; JOHN A. RANDALL, Staten Island; ALFRED A. SCHWARTZ, *New York;* JOHN M. VENABLE, New York City.

To Camp Custer, Battle Creek, Mich., for duty in the base hospital laboratory, from Rockefeller Institute, ABRAHAM A. BRILL, New York City.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieuts. THOMAS F. PATTERSON, Brooklyn; FRANCIS J. TALBOT, Niagara Falls; ROBERT KNIGHT, Seneca Falls; BENJAMIN F. COLEGROVE, Van Etten; JAMES B. FOSTER, Webster; for duty with the general construction companies, CLARENCE H. MACKEY, Lancaster.

To Camp Dix, Wrightstown, N. J., for temporary duty, Capt. MURRAY F. MUDGE, Johnson Creek; BENJAMIN BROD, New York; GEORGE F. HOGAN, Brooklyn.

To Camp Funston, Fort Riley, for duty in charge of the subsection of brain surgery, section of the head, Major MARTIN B. B. TINKER, Ithaca.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. ADAM G. OSBORNE.

To Camp Grant, Rockford, Ill., for duty with the 35th Engineers, from Fort Benjamin Harrison, Lieuts. MINOR McDANIELS, Ithaca; for temporary duty, WILLIAM W. BANER, New York City.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. HARRY S. FINCKE, Long Island City.

To Camp Lee, Petersburg, Va., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieuts. FOREST R. MILDREW, Auburn; OLIVER L. STRINGFIELD, JR., Brooklyn.

To Camp McClellan, Anniston, Ala., and report to the commanding officer of the base hospital for duty, relieved from present duties at this camp, Lieut. FREDERICK C. DEVENDORF, Utica.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. HEMAN R. MARVIN, LYON MARTIN, CHARLES A. KRAUSS, Troy; for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. JOHN R. BOOTH, *Rochester.*

To Camp Mills, Garden City, L. I., for duty as assistant to the division surgeon, from Fort Benjamin Harrison, Major MARION B. McMILLAN.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. GEORGE E. MAURER, New York City; Lieuts. HUBER P. NEWMAN, New York City; JOHN K. NORWOOD, New York City.

To Camp Sevier, Greenville, S. C., and report in person to the commanding general for duty, Lieut. FRANCIS M. SHOCKLEY, Brooklyn.

To Camp Upton, Yaphank, L. I., for duty, Lieut. JOSEPH L. BEHAN, Brooklyn; HARRY FELDMAN, Brooklyn; HECTOR J. McNEILS, Brooklyn; GUSTAF L. NORSTEDT, Brooklyn; MAX ALEXANDER, New York; JOHN C. HUGHES, New York City; JOHN SMITH, JR., New York City; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Walter Reid General Hospital, Takoma Park, D. C., EDWIN F. SAMPSON, New York City; for duty in connection with orthopedic work, BRAINERD H. WHITBECK, New York City.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Capt. DOUGLAS BROWN, New York City; Lieut. JAMES E. CROSSMAN, East Randolph.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Lieuts. MILTON I. STRAHL, Brooklyn; LOUIS B. COHEN, Jamaica; CHARLES L. McEVEETY, New York City.

To Fort Niagara, for duty in connection with orthopedic work, relieved from his present *duties at this camp,* Major FREDERICK N. C. JERAULD, Niagara Falls.

To Fort Oglethorpe, for instruction, from Madison Barracks, N. Y., Major HENRY L. K. SHAW, Albany; Lieut. ANTHONY W. M. MARINE, Brooklyn.

To Gettysburg, Pa., Reorganization Camp, *for* duty, from Fort Ontario, N. Y., Capt. DAYTON C. WIGGIN, Staten Island; Lieut. FRANCIS E. WEATHERBY, New York City.

To New York City, Physical Examining Unit, for duty as a member of the examining *board,* from Mineola, L. I., Lieuts. FEDOR L. SENGER, Brooklyn; for *orthopedic* instruction, ANDREW W. MAHONEY, New York City; for orthopedic instruction, from Fort Benjamin Harrison, ISAAC REITZFELD, New York City.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. WALTER P. BLISS, New York City.

To United States Army General Hospital, No. 1, New York, for duty, Lieut. LEWIS B. ROBINSON, New York City.

To Walter Reed General Hospital, Takoma Park, D. C., for instruction in tuberculosis examinations, Lieut. EDWIN F. SAMPSON, New York City.

To his home and the inactive list of the Medical Reserve Corps, from Camp Mills, L. I., Lieut. HENRY C. THACHER, New York City.

North Carolina

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. LEIGHTON W. HOVIS, Charlotte; JAMES C. GREENE, Greeneville; HENRY *E.* STARR, Greensboro.

To Camp Jackson, Columbia, S. C., for temporary duty, Lieut. JAMES S. MILLIKEN, Buffalo City.

To Camp Lee, Petersburg, Va., for duty *from* Fort Oglethorpe, Lieuts. LAWRENCE M. *FETNER,* Charlotte; *EUGENE R. HARDIN,* Clinton; NICHOLAS B. CANNADY, Lourinburg.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. JULIUS G. THOMAS, Greensboro.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Capt. WILLIAM T. CARSTARPHEN, Wake Forest; Lieuts. CHARLES E. McLEAN, Belmont; SANFORD W. THOMPSON, JR., Sanatorium.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Capt. WILLIAM H. CROWELL, *Whiteville;* Lieuts. JAMES McP. TEMPLETON, Cary; Lieut. THOMAS B. GOLD, Lawndale.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieut. RICHARD B. WHITAKER, Whiteville.

To Camp Wheeler, Macon, Ga., for temporary duty, from Fort Oglethorpe, Lieut. THOMAS ALEXANDER HATHCOCK, Norwood.

To Fort Oglethorpe, for instruction, from school of military roentgenology at Richmond, Va., Lieut. FRANK R. WRENN, Siler City.

To Rockefeller Institute, for a course of instruction in laboratory work, from Fort Oglethorpe, Lieut. HICKMAN RAY, Raleigh.

To the inactive list of the Medical Reserve Corps, Lieut. WILLIAM E. *BRACKETT, Caroleen.*

To the inactive list of the Medical Reserve Corps *on account of* being physically disqualified *for* active service, Lieut. ARTHUR D. MORGAN, Scotland Neck.

Ohio

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Capt. JAMES D. PILCHER, Cleveland; Lieuts. *ABRAHAM B.* GROSSMAN, Cleveland; GEORGE P. TYLER, *Ripley; FRANK* W. PILLIOD, Toledo.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Benjamin Harrison, Lieut. ARTHUR L. DIPPEL, Cleveland.

To Camp Grant, Rockford, Ill., for duty with the Thirty-Fifth Engineers, from Fort Benjamin Harrison, Lieut. JOHN D. MILLER, Cincinnati.

To Camp Lee, Petersburg, Va., for duty from *Fort Oglethorpe,* Lieuts. BENJAMIN H. GILLESPIE, Akron; to report to the commanding officer of the base hospital for temporary duty, relieved *from* his present duties at this camp, EMMETT FAYEN, *Cincinnati.*

To Camp Meade, Annapolis Junction, Md., *for duty,* from Fort Oglethorpe, Lieut. PERCY B. LONG, Copley.

To Camp Pike, Little Rock, Ark., for duty from Fort *Oglethorpe,* Lieut. JOHN R. SMITH, Cleveland.

To Camp Sherman, Chillicothe, for temporary duty, Lieuts. FRANK W. HICKIN, Cleveland; JOHN D. WAKEFIELD, Loveland.

To Cleveland, for duty in connection with the business of Base Hospital No. 4, Lakeside Hospital, Major GEORGE W. CRILE, Cleveland Heights.

To Cornell Medical College, New York, for a course *of instruction* in military roentgenology, Lieuts. ROY F. DRURY, Akron; BERNARD H. NICHOLS, Ravenna.

To Fort Benjamin Harrison, for instruction in *tuberculosis* examination, Lieut. GEORGE L. HAEFELE, *Cleveland.*

To Fort Oglethorpe, for instruction, from Jefferson Hospital, *Philadelphia,* Capt. RALPH W. HOLMES, Chillicothe.

To Kelly Field, South San Antonio, *Texas, for* duty, from Fort Riley, Lieut. ARZO J. PARDEE, Ashtabula.

To Philadelphia, for a course of instruction *in military roentgenology,* Lieut. GUY H. SWAN, Bellefontaine.

To Rockefeller Institute, for a course of *instruction* in laboratory work, Lieut. DAVID L. FARLEY, Youngstown.

To U. S. Army General Hospital, Williamsbridge, N. Y., *for* duty as neurologist, from St. Elizabeth's Hospital, Washington, D. C., *Capt.* William A. Searl, Cuyahoga Falls.

To his home and the inactive list *of* the *Medical Reserve* Corps on account *of* being physically disqualified, Lieut. JOSEPH H. FRAME, Highland.

To the inactive list of the Medical Reserve Corps, from Fort Benjamin Harrison, NATHAN N. MEYER, Youngstown.

Oklahoma

To Army Medical School, for a course of instruction, Lieut. WILLIAM O. FISCHER, Muskogee.

To Cornell Medical College, for a course of instruction in military roentgenology, Lieut. JAMES A. RYAN, Oklahoma.

To Camp Doniphan, Fort Sill, Okla., for temporary duty, Lieut. CLYDE F. LOY, Shawnee.

To Gettysburg, Pa., Reorganization Camp, for duty, from Fort Ontario, N. Y., Lieut. HARRY A. BRIGGS, Henryetta.

To Philadelphia, for a course of instruction in orthopedic surgery, Lieuts. JESSE B. HOLLIS, Hobart; to report to the medical supply officer, Medical Supply Depot, for duty as his assistant, CECIL BRYAN, Vian.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. EDWARD B. BROOCKS, Shawnee.

Oregon

To Army Medical School, for instruction from Fort Douglas, Utah, Lieut. Niles P. Paulsen, Portland.

To Camp Kearny, Linda Vista, Calif., for duty in the base hospital laboratory, Capt. DAVID N. ROBERG.

To Camp Lewis, American Lake, Wash., for duty in the division of otolaryngology, section of surgery of the head, Lieut. JOHN A. STEWART, Portland.

To his home and return to the inactive list of the Medical Reserve Corps, on account of being physically disqualified, Lieut. BENJAMIN F. DeVORE, Oakland.

Pennsylvania

To Army School, for duty in the bacteriologic laboratory, from Rockefeller Institute, Lieuts. MAURICE GOLDBERG, Philadelphia; HARRY E. UNGERLEIDER, Philadelphia; WALTER E. LUNDBLAD, Sayre; CEDRIC E. FILKINS, Philadelphia.

To Camp Devens, Ayer, Mass., for duty as instructor in gas defense, Lieuts. GIBSON SMITH, York; for duty, WILLIAM E. GROVE, Johnstown.

To Camp Dix, Wrightstown, N. J., for duty, from Syracuse, N. Y., Capt. JAMES T. MADDEN, Pittston, for duty from Fort Oglethorpe, Lieuts. RICHARD O. MILLER, Erie; DAVID G. HARVEY, Huntingdon Valley; RAYMOND C. FAGLEY, Kulpmont; HENRY A. SMITH, Mechanicsburg; J. F. MARCHAND SNYDER, New Kensington; CHESTER L. BARRY, Oxford; SAMUEL H. BOYD, Philadelphia; HUGH J. DAVIS, Philadelphia; JAY D. LINTON, Philadelphia; CHARLES S. SCHAFER, Philadelphia; ASBURY C. STROUP, Philadelphia; MORRIS O. THRUSH, Philadelphia; DE LA RAY SIGNOR, Quarryville; JOHN F. ZYCHOWICS, Scranton; WILLIAM A. OSTRANDER, Smithport; HARRY S. VAN ETTEN, Stroudsburg; ARTHUR J. DENMAN, Susquehanna; ABNER H. BAUSCHER, Temple; SAMUEL J. ROSE, Hapelton.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Capts. JAMES K. M. PERRINE, Pittsburgh; CARL K. WAGNER, Swissvale; Lieuts. GEORGE T. McNISH, Alverton; PARKER U. WAGNER, Carlisle; CARL F. PIERCE, Greensburg; JOSEPH J. BELLAS, Lansford; WILLIAM B. SKELTON, Meadville; FRANKLIN D. BENEDICT, Philadelphia; ANDREW J. KEENAN, Jr., Philadelphia; SAMUEL STALBERG, Philadelphia; RUSSELL H. KING, Pittsburgh; WILLIAM A. WELDON, San Pedro; HARVEY B. CORNELL, Scranton; ALBERT PILKINGTON, Westchester; WILMER C. DREIBELBIES, Wilkes-Barre; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, WILLIAM W. WOODS, Monte Alto.

To Camp Greene, Charlotte, N. C., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis from Walter Reed General Hospital, WILLIAM H. HERR, Lancaster; JONATHAN M. WAINWRIGHT, Scranton.

To Camp Hancock, Augusta, Ga., for duty, from Camp Wadsworth, Lieut. WILLIAM P. BARNDOLLAR, Pittsburgh.

To Camp Jackson, Columbia, S. C., for temporary duty, from Fort Oglethorpe, Lieut. STEPHEN S. P. WETMORE, Morrisville.

To Camp Lee, Petersburg, Pa., for duty, from Fort Oglethorpe, Capt. GEORGE C. O. SANTEE, Cressona; Lieuts. WILLIAM C. HENSYL, Berwick; AUDLEY W. RICKETTS, Dempseytown; JOHN J. SWEENEY, Doylestown; SCOTT D. GLEETON, Erie; HARRY GALLAGER, Glen Olden; CLYDE L. WILLIAMS, Harmonsburg; RICHARD S. DAVIS, Philadelphia; WILLIAM O. KLEINSTUBER, Philadelphia; SAMUEL A. BELTZ, Uniontown; THOMAS R. HILLARD, Widnoon; MORGAN E. GRIFFITH, Wilkes-Barre.

To Camp Meade, Annapolis Junction, Md., for duty, from Fort Oglethorpe, Capt. JAMES C. LOGAN, Titusville; Lieuts. EDWIN S. COOKE, Philadelphia; JOHN F. GOLDEN, Dormant; JESSE C. STILLEG, Erie; FRANK P. SUMMA, Kingston; WILLIAM E. HYSKELL, Meadville; HARRY A. CARSKADDEN, Mont Alto; JAMES H. BALDWIN, Philadelphia; EDWARD GRAVER, Pittsburgh; JOHN G. STRIEGEL, Pottsville; SAMUEL A. LEINBACH, Quakertown; DAVID J. JENKINS, Scranton; JAMES L. BRENNAN, Washington; CYRUS JACOBESKY, Wilkes-Barre; LEE C. MUNDY, Wilkes-Barre; BENJAMIN H. PATTERSON, Wilkinsburg; HAROLD E. HERSH, Palmerton; PHILIP S. ROSENBLUM, Philadelphia.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, LEROY UMBURN, Albion; JAMES W. SILLIMAN, Bradenville; IGNATIUS A. BEDNARKIEWICZ, Erie; JOHN H. LLOYD, Erie; LAWRENCE N. BREENE, Farrell; ARTHUR E. BOGART, Philadelphia; BENJAMIN WEINER, Pittsburgh.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Capt. MATTHEW J. SHIELDS, Scranton; Lieut. GEORGE S. DEIBERT, Allentown; HEISTER V. HOWER, Scranton.

To Camp Upton, Yaphank, L. I., for duty, from Fort Oglethorpe, Lieuts. FRANK L. BAUM, Athal; JAMES R. SMITH, Erie; PAUL TIDENCE YOUNG, Erie; JOHN H. HUMES, McKees Rocks; SAMUEL H. PETTLER, New Brighton; JACOB L. ENGLE, Philadelphia; FREDERICK C. PETERS, Philadelphia; AUGUST G. HINRICHS, Pittston; EARL C. WAGNER, Wilkes-Barre.

To Camp Wadsworth, Spartanburg, S. C., for temporary duty, from Fort Oglethorpe, Lieut. FRANK A. BRIDGETT, Philadelphia.

To Camp Wheeler, Macon, Ga., for temporary duty, from Fort Oglethorpe, Lieuts. JOHN J. HISLOP, Miners Mills; PERCY H. SHAW, Philadelphia.

To Chickamauga Park, Ga., for duty, from Fort Oglethorpe, Lieuts. THOMAS O. WILLIAMS, Brooklyn; HERBERT E. SIMRELL, Clark's Summit; ELMER HESS, Erie; RICHARD L. McNEER, Philadelphia; EDMOND R. LETT, Fallassee; MARTIN W. FREAS, United; GEORGE K. STRODE, Westchester.

To Cornell Medical College, New York, for a course of instruction in military roentgenology, Lieut. BOYD E. WILKINSON, Trevorton.

To Fort Oglethorpe, for instruction, from Jefferson Hospital, Philadelphia, Lieuts. W. LATIMER S. LANDES, Philadelphia; JAMES W. LEVERING, Philadelphia; WILLIAM H. G. MacKAY, Philadelphia; LOUIS R. WILEY, Philadelphia; JOHN E. LIVINGOOD, Womelsdorf.

To Philadelphia, for a course of instruction in orthopedic surgery, from Army Medical School, GEORGE H. FAGGART.

To Pittsburgh, for instruction in military roentgenology, from Fort Benjamin Harrison, Lieut. EDWIN P. BUCHANAN, Pittsburgh.

To Rockefeller Institute, for a course of instruction in laboratory work, from Fort Oglethorpe, Lieuts. JOHN W. GOODSELL, New Kensington; PHILIP F. WILLIAMS, Philadelphia; ERNEST J. ATEN, Pittsburgh.

To his home and the inactive list of the Medical Reserve Corps of the Army, Capt. FREDERICK PROESCHER, Pittsburgh.

Rhode Island

To Camp Dodge, Des Moines, Ia., for duty in the base hospital laboratory, from Rockefeller Institute, JAMES HAMILTON, JR., Providence.

South Carolina

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Capt. ISADORE SCHAYER, Columbia.

To Camp Gordon, Atlanta, Ga., for duty from Fort Oglethorpe, Lieut. WILLIAM B. ACKERMAN, Walterboro.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. FITZHUGH P. SALLEY, Buffalo; CLARENCE D. JACOBS, Kingstree; FRANK M. HARVIN, Pinewood.

To Camp Meade, Annapolis Junction, Md., and report to the commanding officer of the base hospital, for temporary duty, relieved from present duties at this camp, Lieut. HERBERT H. HARRIS, Anderson; for duty, Lieut. LACY W. CORBETT, Bishopville.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe, Lieuts. THOMAS M. MOORE, Hagood; WILLIAM J. BURDELL, Lugoff.

South Dakota

To Camp Logan, Houston, Tex., for duty in charge of the division of ophthalmology, section of surgery of the head, from Camp Gordon, Atlanta, Ga., Lieut. DENNIS F. O'CONNOR, Elkton.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieut. ARCHIE McCALLISTER, Crow Creek.

To Kelly Field, South San Antonio, Tex., for duty, from Fort Riley, Lieut. SIGFRED ENGH, White Rock.

Tennessee

To Camp Cody, Deming, N. M., for duty in the base hospital laboratory, from Rockefeller Institute, Lieut. GEORGE L. BROWN, Memphis.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Capt. OTEY J. PORTER, Columbia; Lieuts. LEON D'CASTO COTTEN, Alexandria; GUY C. ANDERSON, Eads; JOHN G. SEAY, Germantown; WILLIAM G. SAUNDERS, Jackson; FREDERICK W. LEE, Springfield.

To Camp Lee, Petersburg, Va., for duty from Fort Oglethorpe, Lieuts. WILLIAM R. BOOHER, Bristol; WILLIAM H. BALLARD, Laconia; WILLIAM D. CAGLE, Lobelville; CHARLES W. BROWN, Nashville; ROBERT L. DOSSETT, Tullahoma.

To Camp Meade, Annapolis Junction, Md., for duty from Fort Oglethorpe, Lieuts. LAWRENCE L. KELLER, Memphis; JOHN H. MORRIS, Pulaski.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. WILLIAM C. SAIN, Bolivar; DAVID A. WALKER, Friendship; THOMAS H. INGRAM, Memphis; FRANCIS M. BOYATT, Oneida.

To Camp Sevier, Greenville, S. C., for temporary duty, from Fort Oglethorpe, Lieut. FLEETWOOD BRUBER, Nashville.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe, Lieuts. HARRY E. HALL, Apison; E. GACOVIA MAXWELL, Darden.

To Phipps Clinic, Baltimore, Md., for intensive training in his specialty, from Fort Oglethorpe, Lieut. GEORGE A. HATCHER, Nashville.

To Washington, D. C., and report in person to the commanding officer, Quartermaster Repair Unit No. 1, for duty, from Army Medical School, Lieut. WILLIAM V. PRUETT, Brownsville.

To the inactive list of the Medical Reserve Corps from duty at Camp Wadsworth, Lieut. THOMAS W. RHODES, Whiteville.

Texas

To Army Medical School, for a course of instruction from Fort Sam Houston, Tex., Lieut. WILLIAM E. NESBIT, San Antonio.

To Boston, Mass., for instruction in orthopedic work, and upon completion of this course to return to the inactive list of the Medical Reserve Corps, Major CHARLES S. VENABLE, San Antonio.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. EUGENE M. PARRISH, Dallas.

To Camp MacArthur, Waco, Tex., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Capt. ISIDORE S. KAHN, San Antonio.

To Richmond Medical College, Richmond, Va., for a course of instruction in military roentgenology, Capt. WILLIAM R. FICKESSEN, San Antonio.

To Rockefeller Institute, for a course of instruction in laboratory work, Lieut. RICHARD C. CURTIS, Temple.

Vermont

To Camp Lee, Petersburg, Va., for duty with the Engineer Service Battalions, from Fort Benjamin Harrison, Lieut. FRANK L. GILBERT, Grafton.

To Camp Vail, Little Silver, N. J., for duty with the Signal Corps, from Fort Benjamin Harrison, Lieut. WALTER F. McKENZIE, Burlington.

To Syracuse, N. Y., Reorganization Camp, for duty, from Fort Ontario, N. Y., Lieut. VICTOR P. GENGE, Newport.

Virginia

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieuts. CHARLES A. YOUNG, Gore; MERIWETHER L. ANDERSON and JAMES G. BOISSEAU, Richmond.

To Camp Doniphan, Fort Sill, Okla., for duty in the base hospital laboratory, from Rockefeller Institute, Capt. ERASMUS G. HOPKINS, Richmond.

To Camp Lee, Petersburg, and report to commanding general, Eightieth Division, for duty, relieved from present duties at this camp, Capt. HUGH T. NELSON, JR., Charlottesville; Lieuts. WILLIAM F. MERCHANT, Manassas; HARRY R. SEELINGER, Norfolk; for duty, from Fort Oglethorpe, Lieut. WILLIAM F. PASSER, City Point; for temporary duty, Lieut. CARROLL E. FOLEY, Lovettesville.

To Camp Pike, Little Rock, Ark., for duty from Fort Oglethorpe, Lieut. WILLIAM A. LUCAS, Toms Creek.

To Camp Upton, Yaphank, L. I., for duty from Fort Oglethorpe, Lieuts. OLIVER F. BLANKINGSHIP, Richmond; WALTER C. TROW, Warrenton.

To Chickamauga Park, Ga., for duty from Fort Oglethorpe, Lieut. JAMES M. DAVIS, Westboro.

To Fort Oglethorpe for duty, Major WILLIAM J. BELL, Bristow, for instruction from school of military roentgenology at Richmond, Lieuts. CHARLES L. RUDASILL and HENRY S. STERN, Richmond.

To Fort Ontario, N. Y., for duty with Field Hospital No. 28, from Fort Benjamin Harrison, Lieut. JOHN C. PHILLIPS, Portsmouth.

To Philadelphia, for orthopedic instruction, from Fort Oglethorpe, Capt. HOWARD FLETCHER, Fairfax.

To Richmond Medical College, Richmond, for a course of instruction in military roentgenology, Lieut. FREDERICK P. FLETCHER, Richmond.

Washington

To Camp Lewis, American Lake, Wash., for duty in the orthopedic service, Capt. EDWARD A. RICH, Tacoma; to report to the commanding officer of the base hospital for duty in the genito-urinary and dermatologic section of the base hospital, relieved from other duties at this camp, Lieut. ALEXANDER H. PEACOCK, Seattle.

West Virginia

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, DENNIS B. JARRELL, Woodville.

To Camp Gordon, Atlanta, Ga., for duty, from Fort Oglethorpe, Lieut. RICHARD H. EDMUNDSON, Morgantown.

To Camp Lee, Petersburg, Va., for duty, from Fort Oglethorpe, Lieuts. FRANK J. BROSCHART, Marting; CHARLES S. COWIE, Martinsburg.

To Camp Pike, Little Rock, Ark., for duty, from Fort Oglethorpe, Lieuts. CLYDE A. HARPER, Amma; REECE M. PEDICORD, Elm Grove; EMERSON MEGRAIL, Wheeling.

To his home and return to the inactive list of the *Medical Reserve* Corps on account of being physically disqualified for active service, Lieut. CHARLES F. MAHOOD, Alderson.

Wisconsin

To Camp Grant, Rockford, Ill., for temporary duty, Lieut. JOHN E. MULSAW, Two Rivers.

To Fort Snelling, Minn., and report to the commanding officer for duty as assistant surgeon, relieved from present duties at this camp, Capt. ROBERT M. NICHOLS, Sheboygan.

To Kelly Field, South San Antonio, Tex., for duty, from Fort Riley, Lieut. GEORGE S. DARBY, Brodhead.

To Sparta, Wis., Camp Robinson, for duty, Lieut. JOHN W. HANSEN, Milwaukee.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

ILLINOIS

Chicago

Personal.—Dr. Heman H. Brown was elected president of the Michigan Society of ,Chicago at its annual meeting, October 27.

Hospital Contract Let.—A contract to build a new wing to the Contagious Disease Hospital was awarded, October 27, for $374,900.

Billings Tells of Russian Experiences.—A testimonial banquet was given by the Physicians' Club of Chicago, in honor of Dr. Frank Billings, at the Auditorium Hotel, November 1. Dr. Augustus O'Neill acted as toastmaster. A silver loving cup was presented to Dr. Billings on behalf of the Physicians' Club.

County Hospital Branch.—Circulars advising voters to vote for the proposition to spend a million dollars for the erection of a Branch County Hospital at Ninety-Fifth and State streets have been sent out by the Branch Association of the County Hospital, which urges the great need for this institution.

Canadian Surgeon-General in Chicago.—Surg.-Gen. John T. Fotheringham, C.A.M.C., K.M.G., who went to France in 1914, with the first Canadian contingent, and was in active service in France until April of this year, when he was made Surgeon-General of Canada, was the guest of honor of the Institute of Medicine of Chicago at its meeting, held November 2, at the LaSalle Hotel, where he delivered an address on "Modern Methods in War from a Medical Standpoint." After the address a buffet supper was served.

IOWA

Hospital News.—The Bertha M. Parsons Building of the Iowa Congregational Hospital Association, Des Moines, was dedicated, October 23. The building is four stories in height, of brick, fireproof, and will accommodate fifty patients.——The 240 acres of land adjacent to the city limits of Shenandoah, making up the bulk of the gift for a memorial hospital by Mrs. Catherine Hand, were sold, October 18, for $65,040.

Southeastern Physicians Elect Officers.—The annual meeting of the Southeastern Iowa Medical Association was held at Fairfield, October 18. Washington was selected as the next place of meeting, and the following officers were elected: president, Dr. James S. Gaumer, Fairfield; vice president, Dr. Elias B. Howell, Ottumwa; secretary-treasurer; Dr. Carl W. Wahrer, Fort Madison, and censors, Drs. Otto A. Geeseka, Mount Pleasant; George W. Hay, Washington, and Samuel K. Davis, Libertyville.

MARYLAND

Personal.—Capt. Alexander D. McConachie, M. R. C., U. S. Army, has left for Plattsburg, N. Y., where he will be in charge of the eye, ear and throat surgical section of the base hospital.——Dr. William S. Thayer, Baltimore, who went to Russia with the Red Cross unit, is in charge of the Red Cross work in Petrograd. He has seventeen men assisting him.——Dr. Archibald C. Harrison, who recently underwent abdominal section at St. Joseph's Hospital, Baltimore, is reported to be convalescent.——Dr. Richard F. Kieffer, Baltimore, who is on duty with a hospital unit on the western front, has recovered from a severe attack of fever.

Physicians Endorse New City Charter.—The Physicians' Civic Club of Baltimore, after a full discussion, has unanimously endorsed a movement to secure a new charter under the Home Rule Amendment. Eighteen years ago the city adopted a charter which earned for itself the title of "Baltimore's Model Charter." Today the charter is out of date. Since its adoption every city but one in the country has changed its charter, incorporating various modern features for securing greater efficiency and greater responsiveness to the will of the people. The physicians stand back of this movement, and will advocate a new charter board to study the needs of Baltimore at the election, November 6.

MASSACHUSETTS

Health Association Meeting.—The regular quarterly meeting of the Massachusetts Board of Health was held in Pittsfield, October 25. The topics considered at the meeting were "The Importance of Modern Public Health Work," "The Work of the Committee on Public Health of Massachusetts Medical Society," "Rural Sanitation," "Industrial Hygiene," "Child Conservation in Time of War," and "Rats, Insects, and Public Enemies."

MINNESOTA

Personal.—Dr. Ernest W. Cowern, North St. Paul, has been appointed physician of Ramsey County. The position carries no salary, and Dr. Cowern is the first man to be officially appointed in ten years.

Minnesota Eye, Ear and Throat Men Elect Officers.—At the annual meeting of the Minnesota Academy of Ophthalmology and Oto-Laryngology, held in St. Paul, the following officers were elected: president, Dr. Frank E. Burch, St. Paul; vice presidents, Drs. James S. Reynolds, Minneapolis, and Conrad W. Wilkowske, Chippewa Falls, Wis., and secretary-treasurer, Dr. John H. Morse, Minneapolis.

New Officers.—At the annual meeting of the St. Louis County Medical Society of Duluth, October 19, Dr. Arthur N. Collins, Duluth, was elected president; Dr. John H. Crowe, Virginia, vice president, and Dr. Charles H. Schroder, Duluth, secretary-treasurer (reelected).——At the annual meeting of the Minnesota Public Health Association, held in St. Paul, the following officers were elected: president, Dr. W. L. Beadie, St. Paul; vice presidents, Mrs. J. R. Brandrup and Mrs. A. L. Robinson; secretary, Dr. Edward L. Tuohy, Duluth, and treasurer, Mr. W. A. Laidlaw. The organization proposes to change from an association to a corporation.

Nurses and the Red Cross Seal Campaign.—In 1916, according to the *Minnesota Public Health Association Journal*, the contribution of the state to the Red Cross and to the Red Cross Seal Campaign was $40,000. It is expected this year that it will amount to $60,000. Through an arrangement with the Public Health Association, each town in the state selling a certain number of seals was entitled to the services of a public health nurse for a period of from one week up, depending on the number of seals sold. Sixty-four towns in 1916 had nurses under this arrangement. The services of the nurse proved so satisfactory in these communities that in almost every instance she was retained an additional week at the expense of the community. For the 1917 campaign, a nurse experienced in all branches of public health work will be furnished free for one week to any community for each 7,000 seals sold. A physician experienced in public health work will be furnished, to any community, with all necessary supplies, for one week for every 20,000 seals sold. This physician will make an intensive health survey, a sanitary survey, school, medical supervision, do infant welfare work, or all of these combined.

NEBRASKA

New Hospital.—Dr. Herschell B. Cummins has recently opened the Seward Hospital, located in the southeast part of Seward.

Lincoln Medical Women Organize.—The women physicians of Lincoln and vicinity have organized the Medical Women's Club of Lincoln, and elected Dr. Daisy M. Hansen, president, and Dr. Laura J. Brown, secretary.

Free Service to Soldiers.—At the annual meeting of the Buffalo County Medical Society, held at Kearney, October 15, it was voted to give free surgical service to men rejected for the Army or Navy of the United States because of minor defects. Dr. Charles K. Gibbons, Kearney, was elected president; Dr. Raymond L. Hart, Amhurst, vice president, and Dr. Joseph L. Bennett, Kearney, secretary-treasurer.

University Hospital Dedicated.—The teaching hospital of the University of Nebraska College of Medicine was dedicated with appropriate ceremonies, October 17, the principal speaker being Chancellor Avery of the university. The new structure, now in full operation with a capacity of 119 beds, was made possible by three legislative appropriations, $150,000 for the building, $65,000 for equipment, and $100,000 for biennial maintenance.

Personal.—Dr. Maurice I. Smith, for several years connected with the department of pharmacology of the University of Michigan, Ann Arbor, has been placed in charge of the department of pharmacology in the College of Medicine in the University of Nebraska, Omaha; Dr. J. A. Kittleson of the University of Minnesota has been appointed professor of anatomy, and Dr. S. A. Rubnitz, instructor in biochemistry.——Dr. Edwin C. Henry, Omaha, has been appointed chief surgeon of the Orthopedic Hospital, Lincoln, during the absence of Dr. J. L. Lord, in the military service.——Dr. J. W. Brendell, Avoca, fractured his wrist, October 6, while cranking his motor car.

NEVADA

State Society Meeting.—The Nevada State Medical Association held its fourteenth annual meeting at Reno, October 18 and 19, under the presidency of Dr. Raymond St. Clair, Reno, and elected the following officers: president, Dr. Henry A. Brown, Reno; vice presidents, Drs. Martin A. Robinson, Reno, and John A. Ascher, Sparks; secretary-treasurer, Dr. John L. Robinson, Reno; trustee, Dr. George L. Servoss, and delegate to the American Medical Association, Dr. William Z. Dahl, Reno.

NEW JERSEY

New County Officers.—At the annual meeting of the Salem County Medical Society, held in Salem, October 10, the following officers were elected: Dr. Henry T. Johnson, Pedricktown, president; Dr. Carey L. Lamborn, Penns Grove, vice president, and Dr. John F. Smith, Salem, secretary-treasurer.

Personal.—Capt. William J. Condon, M. R. C., U. S. Army, New Brunswick, was acquitted, October 27, on the charge of murdering John V. Piper, a student at Rutgers College.——Dr. Edward A. Y. Schellenger has resigned as a member of the board of managers of the Camden County Tuberculosis Hospital, Ancora, and Dr. Edwin C. Pechin has been appointed in his place.——Dr. R. Mills Smith, Camden, October 17, was awarded $1,140 damages for injuries sustained in a grade crossing collision on the Atlantic City Railroad, at Gloucester.

NEW YORK

Personal.—Dr. William E. Gorton, for twenty years a member of the Corning Board of Education, and for the past seven years its president, has resigned, and Dr. E. Eugene Sullivan, Elmira, has been appointed his successor.

Medical Inspectors and Physical Educators' Association.—This organization will hold its next meeting at a place to be designated at one of the sessions of the Section on Hygiene and Physical Education of the New York State Teachers' Association at Syracuse, November 26-28. The purpose of this meeting is to elect officers for the following year and to vote on the constitution of the association.

New York City

Brooklyn Districted.—The health department, January 1, will put into effect its new method of local administration in Brooklyn. This involves the division of the city into fourteen health districts, each with an official in charge, who will report to the city health commissioner.

Microscopic Exhibit.—The New York Microscopical Society will give its annual exhibition at the American Museum of Natural History, November 3, in the evening. In addition to slides of interest in the arts, sciences and industries, there will be a demonstration by the department of health of practical use of the microscope in safeguarding public health.

Eastern Pediatric Societies to Meet.—The combined meeting of the New England Pediatric Society, the Philadelphia Pediatric Society and the Section on Pediatrics of the New York Academy of Medicine will be held in New York City, November 8. There will be clinics during the day, a dinner at the Harvard Club, and after dinner talks on the pediatrician's part in the war.

The Health Department and the Milk Problem.—Loose milk is sold in this city as it has been for years in conformity with regulations of the department of health. A statement made by the department of health emphasizes the fact that the great reduction in infant mortality in this city in recent years is to a large extent due to the general recognition that the only safe milk for babies is Grade A bottled milk. The Bureau of Public Health Education of the department of health is preparing a poster which contrasts the relative costs and food values of milk at 14 cents a quart, porterhouse steak at 35 cents a pound, and eggs at 60 cents a dozen. This shows that even at present prices milk is by far the cheapest of building foods.

Law Does Not Protect Women in New Employments.—A recent *Bulletin* of the department of health relates that an investigation of the conditions under which women elevator operators work, which has just been made by the Division of

Industrial Hygiene, shows that in some instances the conditions under which the women work are insanitary and the hours long; in one instance the night operator was on duty for fifteen hours, less an hour for midnight lunch. These investigations have brought out the fact that the state labor laws regulating the conditions of employment for women only provide for a regulation of conditions of employment of women in factories, shops and stores. The department of health intends to keep the apartment houses where undesirable conditions have been found under observation, and to find a way of safeguarding the health of these women.

Prenatal Instruction to Mothers.—A recent communication from the health department of New York City points out that if a further definite impression is to be made in the infant mortality rates it must come through concerted efforts to reduce the deaths from congenital diseases, and particularly during the first month of life. In order to further this work the health department has organized a special corps of nurses to instruct mother's in matters pertaining to home and personal hygiene, diet, etc., and all matters that will make for healthier mothers and more vigorous children and for reduction in the number of stillbirths. These nurses are assigned to a limited number of baby health stations, and the nurses in charge of the fifty-nine baby health stations throughout the city are prepared to afford similar instruction. The health department feels that the general practitioners of the city should avail themselves of this service to a greater extent than heretofore, and their cooperation is requested to the end that they notify a baby health station nurse of those cases which they believe would be materially benefited by prenatal instruction, so that the nurse may visit and instruct her.

OHIO

Hoover Back in Cleveland.—Major Charles F. Hoover of the Lakeside Hospital Unit, who has recently returned from the western war front, spoke on "The Medical Aspects of the War" before the Academy of Medicine of Cleveland, October 19.

Million for Convalescent Hospital.—The health commissioner of Cleveland has asked that the voters pass on the consideration of the use of the entire apportionment of the million-dollar hospital bond fund for the use of the new convalescent hospital at Warrensville. This, he claims, will relieve the congestion at the City Hospital and at other Cleveland hospitals, and, furthermore, will enable Cleveland to care for wounded soldiers.

Personal.—An explosion, believed to have been caused by gas, wrecked the house of Dr. Leo F. Towers, Toledo, October 19.——Dr. Rush R. Richison, Yellow Springs, has been appointed superintendent of the district tuberculosis hospital, Springfield, succeeding Dr. Henry Baldwin. The appointment will become effective, Jan. 3, 1918.——Dr. Robert C. Longfellow, Toledo, chairman of the Elk's Food Conservation Bureau, who offered his service and that of the Toledo Clinical Laboratories for government use, has been appointed a member of the county committee by the state food administrator.

District Association Meetings.—The annual meeting of the Ninth District Medical Association was held in Portsmouth, October 4. Ironton was selected as the next place of meeting. Dr. W. Wilson Lynd, Ironton, was elected president, and Dr. Ephraim E. Ellsworth, Ironton, secretary.——The Tenth District Medical Association, at its annual meeting in Mount Vernon, October 2, elected Dr. Charles D. Mills, Marysville, president; Drs. Howard E. Jones, Circleville; Charles E. Trimble, Crestline; Oscar W. Bonner, Delaware; Herbert M. Platter, Columbus; Francis W. Blake, Gambier; Amos F. Green, West Jefferson; George H. Pugh, Mount Gilead; Raymond E. Bower, Chillicothe; Argus B. Swisher, Marysville, and Blenn R. Bales, Circleville, vice presidents, and Dr. George W. Keil, Columbus, secretary-treasurer.——The Second Counsellor District Medical Association held its annual meeting and postgraduate clinic course at Dayton, September 24 to 28, under the presidency of Dr. Leora G. Bowers, Dayton. Clinics were held from 9 to 4 on each day of the session, and the following officers were elected, September 27: president, Dr. Edwin M. Huston, Dayton; secretary, Dr. Edgar L. Braunlin, and treasurer, Dr. Herbert C. Haning, all of Dayton. ——The Eighth Counsellor District Medical Society, at its meeting in Zanesville, September 20, elected Dr. John G. McDougal, New Lexington, president, and Dr. Robert W. Miller, Hemlock, secretary-treasurer. New Lexington was selected the place of meeting for next year.

Cincinnati

Personal.—Dr. Harry Freudenberger has been granted a permit in the Probate Court to change his name to Philip Gath.——Dr. Allen W. Freeman assumed his duties as state health commissioner, October 1.——Dr. John M. Withrow has made a plea in behalf of the newly created State Board of Education for funds for the overhead expenses of the board, in applying the Smith-Hughes Vocational Education Tax.

OKLAHOMA

Personal.—At its October meeting, the Board of Medical Examiners of Oklahoma elected as secretary, Dr. James J. Williams of Weatherford, in place of Dr. Ralph V. Smith, Tulsa, who resigned and joined the Medical Reserve Corps.

Antituberculosis Work.—The Oklahoma Association for the Study and Prevention of Tuberculosis has selected Jewell Schevitz, who has been director of the Sanitary Survey of Union Hill, N. J., as secretary of the association, with a special duty of organizing the state for permanent antituberculosis work. Mr. Schevitz has already opened office in Oklahoma City.

PENNSYLVANIA

Glanders Epidemic.—Glanders is reported to be epidemic in Pittsburgh, where in the three weeks preceding October 11, thirty horses afflicted with the disease were shot. Watering troughs throughout the city have been ordered closed.

Cumberland Valley Physicians Meet.—At the fifteenth annual meeting of the Cumberland Valley Medical Association, held in Boiling Springs, the following officers were elected: president, Dr. Percy D. Hoover, Waynesboro; vice presidents, Drs. William C. Schultz, Waynesboro, and Henry C. Lawton, Camp Hill; secretary, Dr. John J. Coffman, Scotland (reelected), and treasurer, Dr. John C. Gilland, Greencastle.

Personal.—Dr. Samuel G. Dixon, state health commissioner, who has been under treatment in the University Hospital, Philadelphia, on account of a nervous breakdown, is reported to be improving.——Dr. Harvey L. Gerberich, Lebanon, who was operated on for strangulated hernia in the Good Samaritan Hospital, October 14, is reported to be making satisfactory progress toward recovery.——Dr. William M. Lynch, Clark's Summit, has been reelected superintendent of the Fairview Hospital for the Criminal Insane.——Dr. Adolph Koenig, Pittsburgh, has been reappointed a member of the State Bureau of Medical Directors and Licensure.——Dr. Howard W. Gibbs, Scranton, has been made surgeon in chief of the Northern General Hospital, Sheffield, England.——Dr. John B. McAlister, Harrisburg, has been appointed a member of the commission to study health insurance.

Hospital Course for War Nurses.—October 25, hospitals throughout the state were asked by the state committe of public safety to provide a special three-month training course for nurses in an effort to meet the shortage caused by the war. The appeal was made by the department of the committee devoted to the work of sanitation and medicine, and was sent to each of the principal hospitals. In urging the adoption of the plan, the appeal says:

> "Such a course is offered at the University of Pennsylvania Hospital to women who do not care to enter for three years' training to become graduate nurses. Women between the ages of 21 and 42 who have completed Red Cross work in hygiene and home care of the sick are admitted to this course. They are required to spend a probationary period of two weeks in the hospital, furnish health certificates and personal references before being accepted for the three-months' work. Their work includes practical training, bed-making, serving food, caring for wards, waiting on patients in minor capacities with full opportunity being given for observing all details of hospital work.

Philadelphia

Contract Let.—The Department of Health and Charities has awarded the contract for the power plant for the Philadelphia General Hospital.

Personal.—Drs. Samuel Wolf and Rae S. Dorsett have been appointed members of the staff of the Philadelphia General Hospital.——Dr. Frank C. Hammond has succeeded Dr. Alexander C. Abbott on the board of health. Dr. Abbott has entered the federal service.

Tree as Memorial to Dr. James William White.—A red oak tree was planted in Rittenhouse Square, October 26, in memory of the late Dr. James William White, noted surgeon and author. The ceremony, arranged by the Walnut Street Business Association, was the feature of fall Arbor Day observances in this city. Edgar Fahs Smith, provost of the

University of Pennsylvania, and Dr. Wilmer Krusen, director of public health and charities, spoke at the Rittenhouse Square celebration. Eli K. Price accepted the tree on behalf of the park commission.

Recommendations Regarding Venereal Diseases.—The following recommendations adopted by the Committee on Health and Sanitation of the Philadelphia District Committee of the Pennsylvania State Committee of Public Safety have been made to the director of the Department of Health and Charities of the City of Philadelphia:

1. That for the best interests of the city, and the sailors and soldiers within its borders, prostitutes, when diseased, be isolated, efficiently treated medically, and quarantined in properly equipped hospitals until their infectious stage has subsided.

2. That a squad of women policemen be created to control street walkers.

3. Realizing the appalling fact that 90 per cent. of dispensary patients afflicted with venereal diseases quit treatment before discharged cured, it is desirable to use coercion through the cooperation of civil and medical authorities, of these moral slackers, if the indiscriminate spread of venereal disease is to be controlled. It is highly important before undertaking such action to abolish the medical imposters infesting communities, whose sole object is to lure and rob ignorant young men; therefore, the Board of Health is urged to adopt and enforce regulations which shall abolish so-called "medical museums" and advertising "specialists" and quacks. Also,

4. That the Department of Health have notices relative to the diagnosis and treatment of venereal disease prepared, stating the names of hospitals fulfilling the standard requirements, their location, dispensary and admission hours; that these notices be framed and placed in all public lavatories, saloons, theaters, hotels, industrial plants, department stores, military bases and cantonments.

5. That the venereal wards of the Philadelphia Hospital have their bed capacity increased so that that institution may properly care for infected prostitutes and misdemeanants referred from the Municipal Court and other sources.

Recommendations made to the State Board of Medical Education and Licensure:

1. That all general hospitals receiving or hoping to receive State aid financially shall maintain a separate Department of Genito-Urinary Surgery and Venereal Diseases with a recognized Staff position distinct from the Department of General Surgery.

2. That this Department shall consist of both an Out-Patient and Ward Service, prepared to receive patients afflicted with acute contagious and transmissible venereal diseases, who at the discretion of the Chief of the Genito-Urinary Department should be admitted.

3. That such hospitals be provided with the proper laboratory equipment for microscopical, bacteriological, serological or other examination and treatment of patients.

4. That in all hospitals maintaining a Department of Venereal Diseases it is advisable for the Social Service Department to provide male as well as female representatives for cooperation in tracing and controlling moral slackers afflicted with venereal disease.

VIRGINIA

Hospital Association Incorporated.—The Prince George Hospital Association has been incorporated at Hopewell with a capital of $50,000. Dr. Johannes C. Bodow, Hopewell, is president of the association, and C. F. Cockey, secretary-treasurer.

Richmond Districted.—In order to promote efficiency of inspection. Dr. Roy K. Flannagan, chief health officer of the city, has divided the city into eight districts, with an inspector for each district. These inspectors will be under the general supervision of Chief Inspector Walter Lowry.

Personal.—Drs. Stuart McGuire, Richmond, and Thomas C. Firebaugh, Harrisburg, have resigned from the state board of health on account of entering military service. Harry T. Marshall, Charlottesville, has been appointed a member of the board to succeed Dr. Firebaugh.——Dr. C. Curtis Hudson, Danville, has been elected full-time health officer of Charlotte, N. C.——Dr. Edward T. Glover has succeeded Dr. Gray G. Holladay, Portsmouth, resigned, as coroner of Norfolk.

New Officers.—At the annual meeting of the James City County Medical Society, held in Williamsburg, the following officers were elected: president, Dr. John M. Henderson, mayor of Williamsburg; vice president, Dr. Albert M. Sneed, Toano, and secretary-treasurer, Dr. David J. King, Williamsburg. A resolution was adopted providing that each member agree to contribute $50 a year toward the fund to be paid monthly to the wife and dependents of any member of the society who may be called into service of the country.

CANADA

Hospital News.—Mr. Horace L. Brittain of the Municipal Research Department, Toronto, has been appointed superintendent of the Toronto General Hospital for one year, Dr. Charles K. Clarke, who resigned over a year ago, continuing as medical superintendent. The Toronto General Hospital has been running behind at the rate of $4,000 a month, and has recently asked the city council for a grant of $50,000. In fact, all the hospitals have been hard pressed, as they are all seeking grants from the city treasury.

New Ontario Laboratories Opened.—October 25, the formal opening exercises of the new laboratories of the Ontario Board of Health were conducted by the Duke of Devonshire. The laboratories are about 8 miles from Toronto, and are the gifts to the University of Toronto of Col. Albert Goodesbane, and represent an expenditure of $75,000. The director is Major J. G. Fitzgerald. They are named the Connaught Laboratories, after the former Governor-General of Canada, and are the only serum laboratories in Canada. Besides preparing tetanus serum for overseas, the laboratories also prepare, both for war and local purposes, meningitis and pneumonia serum, diphtheria antitoxin, typhoid vaccine and the Pasteur treatment.

Personal.—The Canadian Associated Press reports that Gen. Guy Carleton Jones, C. M. G., Ottawa, Ont., is returning to Canada to resume his duties as Director-General, Army Medical Services, which have lately been discharged by Gen. John Taylor Fotheringham, C. M. G.——Dr. Wilmer Denny, who was graduated from the Western University, London, Ont., a few months ago, has been commissioned medical officer in the Royal Navy.——Lieut. W. S. Smith, R. A. M. C., Kingston, Ont., who has served in France and Saloniki, was home for a short time with rheumatism, but has joined the C. A. M. C., and has returned to England.——Major Henry E. Paul, Fort William, Ont., is in command of the Canadian hospital at Etchinghill, England. On the staff are Capts. Henry K. Bates, Toronto; George O. Scott, Ottawa; Allan M. Yates, London, Ont.; John G. Gunn, Ailsa Craig, Ont.; William T. Lockhart, Carnduff, Sask,; Burpee F. Steeves, Claresholm, Alta.; A. B. Jackson, Simcoe, Ont., and Lieut. A. V. Greaves, Toronto.

Dr. Simon Flexner in Toronto.—October 25, Dr. Simon Flexner of the Rockefeller Institute, New York, addressed a large audience of medical men and students in Convocation Hall, University of Toronto. The subject was "Certain War Activities of the Institute." Dr. Alexis Carrel, New York, had been in France since the beginning of the war, and one of the first of the war activities was to deal with the alarming and frequent occurrence of gaseous gangrenes, and even yet no adequate preventive measures had been evolved. From the time of the discovery of the micro-organism responsible for the disease until 1914, only 200 cases had come to light. It became common in France in a very short time, induced largely by the richly fertilized soil. The bacilli clung even to sterilized uniforms. He told of the opening of a small hospital for experimental purposes, and of the use of chlorin and boric acid to eliminate the bacilli from the system. Finally, an antitoxin was compounded which, it was hoped, would dominate the gaseous gangrene curse. He also spoke of the tetanus antitoxin, and looked for much preventive and curative benefit therefrom. Pictures were shown of the experimental hospital.

GENERAL

Southern Physicians to Meet.—The Southern Medical Association will hold its annual meeting in Memphis, Tenn., November 12-15, under the presidency of Dr. Duncan Eve, Sr., Nashville.

Railway Surgeons to Meet.—The New York and New England Association of Railway Surgeons will hold its twenty-seventh annual session at the Hotel McAlpin, New York, November 8, under the presidency of Dr. Halbert G. Stetson, Greenfield, Mass.

The Waring Case.—House Bill No. 6343 has been brought before Congress by Mr. Montague, and authorizes the President to nominate, and with the advice and consent of the Senate, to appoint John B. Waring, late a captain in the Medical Corps on the retired list, increasing the list by one, for this purpose.

New Electrotherapeutic Officers.—The American Association of Electrotherapeutics and Radiology, formerly the American Electrotherapeutic Association, at its annual meeting elected the following officers: president, Dr. Frank B. Granger, Boston; secretary-registrar, Dr. Byron S. Price, New York, and treasurer, Dr. Emil Heuel, New York.

Foundation of Urology.—Under an agreement between the executors of the estate of the late James Buchanan Brady and his heirs, most of the estate, estimated at $3,000,000, is now available for the New York Hospital, and makes possible the establishment of the James Buchanan Brady Foundation of Urology, which is in accordance with the testator's plans. Dr. Oswald S. Lowsley, who was named by Mr. Brady as director, has the plans of the foundation in charge.

New Officers for Public Health Association.—At the forty-fifth annual meeting of the American Public Health Association, held in Washington, D. C., October 17-20, under the presidency of Dr. William A. Evans, Chicago, the following officers were elected: president, Dr. C. O. Hastings, Toronto, Ont.; vice presidents, Drs. George M. Kober, Washington, D. C.; Emanuel S. Iglesias, Vera Cruz, Mexico, and Guilford H. Sumner, Des Moines, Iowa; secretary, A. W. Hedrich, Boston, and treasurer, Lee K. Frankel, New York. The association adopted the resolution favoring the bestowal of the Nobel Price on Major-Gen. William C. Gorgas, Surgeon-General, U. S. Army, for placing yellow fever in the list of preventable diseases.

Georgia Board Investigates Charges.—The Georgia Board of Medical Examiners recently heard charges preferred against Dr. J. A. McLeay, Atlanta, to the effect that, under the charter of the Southern College of Medicine and Surgery of Atlanta, which was closed in 1914, he had been illegally issuing medical diplomas for a stipulated sum. The matter was referred to the solicitor general of the superior court for action. The board also heard charges of using forged licenses against Drs. C. J. Malloy, Helena; S. B. Ellis, Whilesburg; F. C. Bentley, Crandall, and W. R. Rothrock, Athens. There is no record of licenses having been issued to these physicians. The board directed the secretary to assist the county solicitors in prosecuting these men on charges of illegally practicing medicine.

Foreign Patents to Be Open to American Manufacturers.—Since the outbreak of the war there has been a shortage of certain synthetic drugs, especially salvarsan and neosalvarsan. As the patents for many of these drugs were owned by German firms, American manufacturers, of course, could not make them. When the United States severed its relations with Germany, it was realized that some provision should be made to supply articles controlled by enemy-owned patents. As early as June, Congress was considering "the trading with the enemy act," then known as "The Adamson Bill," the purpose of which was to confer authority on the President to license American firms to use German patents. In the latter part of September, the "trading with the enemy act" finally became a law.

During this period, Dr. Marston T. Bogert, chairman of the Committee on Chemistry of the National Research Council, was being aided by a special committee on synthetics composed of Julius Stieglitz, chairman, president of the American Chemical Society; Roger Adams of the University of Illinois, M. Gomberg of the University of Michigan and W. A. Puckner, secretary of the Council on Pharmacy and Chemistry. (Shortage of Synthetic Drugs, The Journal, Aug. 4, 1917, p. 400.) This committee gathered information as to drugs which were difficult to obtain, and considered recommendations which might be made for the enforcement of the law. On October 30, the Federal Trade Commission held a conference in Washington regarding the granting of licenses of enemy patents, at which the material of this and other committees was placed at the disposal of the Trade Commission. According to reports at hand, the discussion covered questions of manufacture, of control of the product, distribution and price.

The regulations issued by the commission based on the law safeguard the interests of patent owners, who, after the war, are to receive some remuneration for the use of their inventions, and provides that licenses will be issued only where the public welfare demands it—that is, to supply a demand not now being met. In this connection it is well to point out that the number of drugs of which there is a serious shortage is not great. Even in Great Britian—which has a law similar to the trading with the enemy act—relatively few German patents have been turned over to English licensees.

FOREIGN

Argentine Medical Bibliography.—Under the auspices of the *Revista Medica del Rosario,* the classified medical bibliography for Argentina during the year 1916 has been published in a 120-page pamphlet. The compilation was done by Dr. M. A. Blanco.

Serum and Vaccine Institute at Naples.—Prof. I. Bandi has been placed in charge of the newly opened institution at Naples for production of therapeutic serums and vaccines and as a center for research in hygiene and biology, with special regard to colonial conditions.

The Argentine Medical Association.—A recent three-day meeting at Buenos Aires of this association was devoted to brain tumors. The differential diagnosis was presented by Drs. Castex, Alurralde, Borda, Chiappori and Houssay, the operative treatment by Segura, Palma and Finochietto, while D. J. Cranwell spoke on echinococcus disease of the brain.

Deaths in the Profession Abroad.—**E. Delens,** *agrégé* professor of ophthalmology at the University of Paris until retirement, aged 78.——**A. J. F. Dastre,** chief of the laboratory for animal physiology at the University of Paris, killed in an automobile accident. From recent casualty lists, British: Surg. **A. E. Panter,** Capt. **W. R. Aspinall** (Australian), Lieut. **J. F. Elliott,** Asst. Surg. **A. R. Underwood,** Lieut. **R. F. Hiley,** Capt. **F. Hardie,** Capt. **R. L. Henderson** (Australian). Italian: Lieut. **G. Maccia;** Capt. **E. Boeri,** Lieut. **G. Polcher,** Lieut. **S. Redaelli,** Capt. **G. Castornio,** Capt. **C. T. Aurelio,** Lieut. **B. Gallotti.**

Medical Supplies in India.—Madras is the center for government medical supplies in India. Since the outbreak of the war, the manufacture and preparation of drugs has been centered in that city. Until 1912, Calcutta had been the manufacturing place, but it has been converted into a distributing center, as has been the case also with Rangoon. At Bombay certain stores have been specializing in the manufacure of surgical instruments. It is expected by the director of stores in Madras to make disinfectants, especially those of the phenol group, emetin, and starch from rice. Castor oil is manufactured and the possibilities of making glycerin are being investigated. It is proposed also, according to *Commerce Reports,* to increase the production of field dressings, bandages, etc. Quinin is now manufactured at Nilgiris and the Indian government medical service at Simla has completed inquiries regarding the increased cultivation of cinchona in Bombay, Madras, Burma and other provinces.

Shortage of Physicians in Great Britain.—Comment in the *British Medical Journal* (Sept. 29, 1917, p. 428), shows that for the next few years the annual output of physicians from the British medical schools will fall below the normal annual decrease in times of peace. The shortage of physicians will be even more marked hereafter owing to the pressing demands of the army service and the casualties resulting in that service. The normal annual decrease in the number of physicians is placed at 900. Figures collected recently show that only 900 men each year are due to qualify in 1917 and 1918. The shortage will be still more serious in 1919, 1920 and 1921 when, respectively, only 519, 800 and 700 physicians are due to qualify. It is said that the supply of physicians for the need of the civil population has already been reduced to the minimum consistent with safety. All the new additions to the ranks of the medical profession are to be at once requisitioned for army medical service so that there will be no reserves to make up the annual depletion from deaths and retirement from practice. The outlook both for civil and army medical services in Britain, therefore, is quite unsatisfactory. Even the demobilizing of medical students now in the ranks so they can return to the medical schools and complete their training, a measure now being planned, will fall considerably short of meeting the requirement.

PARIS LETTER

Paris, Sept. 13, 1917.

The War

AUTOCHTHONOUS MALARIA

Drs. Victor Raymond and Grysez have communicated to the Réunion médico-chirurgicale de la III-e Armée their observations of four patients who entered the hospital presenting the following symptoms: fever of short duration, the temperature falling to normal subsequently, with febrile paroxysms recurring from day to day, without definite periodicity, and of several hours' duration. In the interval there was a slight degree of anemia without any gastro-intestinal disturbance, no pain in the tibias, but always a very marked hypertrophy of the spleen. The symptoms would at first lead one to think of malaria, but none of the four patients seen had ever been outside of France, nor did they ever have any intermittent fever; they came from nonmalarial districts, two from Paris, one from the department of Basses-Pyrénées and one from the department of the Marne. In three of these cases the blood was examined at the beginning of the febrile attack. In all three a hematozoon was found. This parasite was that of benign tertian fever, *Plasmodium vivax:* gregariniform, with rosettes having sixteen nuclei, oval gametes, Schüffner's grains; no crescents. The affection is benign, and the febrile paroxysm may be suppressed by means of quinin, given by mouth, in doses of from 1.5 to 2 gm. for three successive days. Inquiry established the fact that the disease originated in one corps which had been stationed for many weeks in an inundated district abounding in mosquitoes. The members of this corps had all been stung many times by these insects. The examination of a certain number of mosquitoes gathered from that region showed that 7 per cent. were *Anopheles.* The corps in which these cases occurred had been preceded in that section by a native regiment, and some weeks previously it had received an increment of some size consisting of repatriates from Saloniki, many of whom presented relapses of malaria. It is a question, therefore, whether this is not to be regarded as a small focus of autochthonous malaria, because the region in which these cases appeared was free from malaria before the war. It is better, perhaps, to assume that the repatriates from Saloniki played the rôle of virus reservoirs or carriers. Dr. Abrami has stated that benign tertian malaria and its parasite, the *Plasmodium vivax*, have occurred frequently at Saloniki this year, and that the small percentage of *Anopheles* explains the small number of cases observed.

NO FURTHER EXEMPTION FOR PHYSICIANS ON THE GROUND OF PHYSICAL UNFITNESS

The undersecretary of state of the Service de Santé militaire has made known, by means of a circular, that there is to be no further exemption of medical men on the basis of physical unfitness. Hereafter, every doctor who is called into service will be utilized as far as his physical unfitness will permit.

PRACTICE OF CIVIL MEDICINE BY THE MOBILIZED PROFESSION

M. Chassaing, having demanded of the ministry of war (1) whether in the zones of the armies the physicians of a unit stationed in a locality unprovided with civil physicians are obliged to give their services to the civil population, or whether they may choose to do so; (2) whether they must visit the civilian sick in localities other than the one in which their cantonment is situated; (3) if they have the right to ask for transportation to patients residing at some distance, and if, in the course of such transport, there occurs an accident, will the case be considered as having occurred in the line of duty; (4) if they have the right to demand or expect an honorarium, received the following reply:

"The regulation relative to placing the army medical man at the disposal of communities unprovided with physicians not mobilized is applicable in the army zones as in the interior. The army physicians so detached ought to be called from the personnel of the region and not from any sanitary formations on duty in that region. However, the surgeons in chief of such sanitary formations may place their personnel at the disposal of civilians who are without medical service in the absence of physicians detached by the directors of this region. Under the circumstances, it is well to understand that service is assured by the medical personnel of the army under the same conditions as by the personnel of the region, that is to say, gratuitously, and if necessary, means of transportation are to be placed at their disposal by the municipal authorities. In the case of accidents occurring in the course of this detail or absence on such service, these medical officers are considered as being in actual service."

CREATION OF A COMMITTEE ON CHEMICAL PRODUCTS

The minister of commerce has appointed a committee to investigate the sale and manufacture of chemical products, coloring agents, pharmaceutical products, photographic materials, perfumes, etc. This committee is charged to determine, centralize, coordinate or control the needs of the state and of the public; to provide means to meet, in the best manner possible, the needs of the nation; to secure rational utilization of the resources of the country; to satisfy the demands of home as well as of foreign trade; the sale and transport and manufacture, the importation, the exportation and the composition of stock. So far as concerns the industries utilizing reserve materials, particularly for national defense, the committee has fixed and proposed to the proper ministry: the monthly allotment of materials placed at the disposition of private industries; the prices of materials and products given up by the state, and the prices and the conditions of sale and consumption of products manufactured by the private industries from materials and products given up by the state.

WINE RATION OF THE SOLDIERS

The minister of food control (ravitaillement), in accord with the ministry of war, has decided to increase the soldiers' daily wine ration to 0.75 liter. This had previously been fixed at 0.5 liter. The measure becomes effective, Jan. 1, 1918.

A Home for American Students in Paris

The municipal council of Paris has offered to the universities of the United States ground on which to construct a home for American students. This territory is about 1,000 meters square, and is situated on the Champ-de-Mars. Building operations will be begun shortly, thanks to the efforts of Mr. James Hyde, originator of the idea of this foundation; to Prof. Barrett Wendel, president, and to Mr. Bliss, secretary of the committee resident in New York, which will raise the necessary funds by subscription. The committee has already received a number of gifts. Ere long, the American students who, year after year, come to France in rather large numbers, will have in Paris a large establishment, appointed in the most modern style, where they will be entirely at home.

Death of Dr. Jouty

Dr. A. Jouty, otolaryngologist of the municipal hospital of Oran, died at Lyons from fulminant septicemia, the result of an accidental infection. He has been in continuous service since the beginning of the war, first at Oran, then at Bel-Abbès, and finally at Lyons, where he had charge of a special service.

LONDON LETTER

London, Oct. 8, 1917.

The War

THE AIR RAIDS

During the harvest moon, London has endured an unprecedented succession of air raids—six in eight days. They commenced soon after sunset and lasted from one to three hours. The enormous development of the defenses enabled a heavy barrage fire, appalling to witness, to be maintained almost continuously for as long as an hour when necessary. The roar of the guns was so continuous as to suggest the working of some gigantic machinery. Thanks to the effectiveness of the barrage, only one or two of the raiders, whose number on each occasion is estimated at about twenty machines, got through. The casualties were therefore few. Ample provision had been made to deal with them by organizing ambulance parties in every district of the metropolis. The danger to those in the open air was really greater from our own shrapnel, which in some districts dropped like rain. But on receiving the warning of the approach of the raiders, the public quickly took cover in the basements of houses, or in buildings that offered special protection. The underground tube stations were ideal places of refuge and were crowded, principally by foreigners. The mental effect produced on the majority of the English people was very different from that calculated on by the Hun, with his usual ignorance of the psychology of other races. Of terror or panic there was very little, and this was almost confined to women anxious about their children. The predominant feeling was intense anger that German cities were not subjected to the same experience. Indeed, this feeling has at last forced the government to announce that German cities will be raided. Unlike our barbarous foes, we shall as far as possible spare women and children by attacking munition works and other military objectives.

AN AMERICAN HOSPITAL OPENED IN LONDON

Dr. Page, United States Ambassador, has opened St. Catherine's Lodge, Regents Park, as a hospital for American and British officers. The house with grounds of about 4 acres has been equipped for forty patients by Mr. and Mrs. William Salomon of New York, owners of the lease, who will maintain it for the duration of the war. It is controlled by the London chapter of the American Red Cross, and is the first American Red Cross Hospital established in Europe. It is fitted to accommodate orthopedic patients. Two of the American orthopedic surgeons who came to this country under the command of Major Goldthwait of Boston, and are attached to the Sheperd's Bush Military Orthopaedic Hospital, Capt. E. Kidner of Detroit and Capt. de Forrest Willard of Philadelphia, have been chosen as the nucleus of the medical unit under the supervision of Col. Sir Robert Jones. The nursing staff will be American. For work other than orthopedic, some of the most eminent London physicians and surgeons have offered their services. Dr. Page said he had to acknowledge the great generosity of the donors. It was gratifying to find the work of the American Red Cross well started in London. The hospital differed from others in that it would give orthopedic treatment to officers. He was told that 70 per cent. of cases yielded to the treatment which had been developed under the leadership of Sir Robert Jones.

AUSTRALIAN PHYSICIANS DECIDE FOR CONSCRIPTION

The members of the British Medical Association in Australia have replied to the question whether they desire conscription of the medical profession in Australia for service at home and abroad. Out of a total of 1,361 votes, 1,011 were given in favor of conscription—a majority of practically 75 per cent. The voluntary system has achieved great results, but they are not now adequate to the requirements of the army. Under it nearly 1,000 physicians out of a total well under 3,000 relinquished their practices and proceeded overseas with the expeditionary force. In addition, 400 undertook military service in the commonwealth. Of those that went to the front, the number who have given their lives amounts to fifty, a proportion greater than that of the combatant troops.

The Health of Schoolchildren

Sir George Newman, chief medical officer of the board of education, has published his annual report for 1916. He states that the fact must be faced that in 1916, as in former years, the records show a large amount of ill health and physical and mental defect. A year ago a moderate computation yielded not less than a million children of school age as being so defective or diseased as to be unable to derive reasonable benefit from education. What is needed is an effective unification of all the powers having for their purpose the healthy upbringing of youth. In addition, it is essential that the local education authorities should have continually before them a clear view of the steps necessary to secure the full value of the school medical service to every child of school age in their area. He considers that the irreducible minimum that will yield the results the nation requires is as follows: 1. Every child shall periodically come under direct medical and dental supervision, and if found defective shall be "followed up." 2. Every child found malnourished shall, somehow or other, be nourished; and every child found verminous shall, somehow or other, be cleansed. 3. For every sick, diseased or defective child skilled medical treatment shall be available, either by the local education authority or otherwise. 4. Every child shall be educated in a well ventilated schoolroom or classroom, or in some form of open-air schoolroom or classroom. 5. Every child shall have daily organized physical exercise of appropriate character. 6. No child of school age shall be employed for profit except under approved conditions. 7. The school environment and the means of education shall be such as can in no case exert unfavorable or injurious influence on the health, growth and development of the child. Dealing with the care and training of children under the school age, that is, under 5, the report states that their physical and mental well-being is not adequately provided for. The view is expressed that eventually it may be thought desirable that they should be educated on the lines suggested by the Consultative Committees for Nursery Schools.

The importance of dental disease is becoming more evident to the educational and military authorities concerned. So widespread is oral sepsis, and ill health directly due to the bad condition of the teeth, that great national efforts must be made to deal with the problem. The school is the place, and childhood is the time to intervene. A chapter is devoted to the benefits that are derived from an open-air life. It is estimated that there are not fewer than 600,000 children for whom the best possible treatment is an open-air school, and the need for the extension by authorities of their present facilities for open-air education is stated to be urgent.

The teaching of mothercraft is also dealt with. It is laid down that if the schoolgirls of this generation are to become wise mothers of the next, they must be taught the elements of mothercraft. The teaching of mothercraft may be divided into three periods: (1) instruction to the older girls at the elementary schools; (2) instruction to girls from 14 to 18 years old, and (3) instruction to married women. Where introduced, the teaching of mothercraft is declared to be satisfactory and practical; but the schools in which it is in operation are far too few; and apart from isolated lessons given during training in housewifery, etc., local education authorities have done almost nothing to encourage the general introduction of this teaching throughout all schools in their areas.

In regard to physical education, Sir George Newman remarks that there is an increasing recognition of its value. The problem before the board of education has heretofore been relatively narrow, namely, to lay the foundations of a system of physical training throughout public elementary schools and encourage its development in secondary and continuation schools. Now their field of action is likely to be enlarged. The work hitherto accomplished must be strengthened and established, and if, as is hoped, all children remain at school till at least 14, the teaching of physical exercises in the public elementary school can be expanded and more satisfactorily carried out than when any children leave at the age of 12 or 13.

The control of juvenile employment is considered in all its aspects. Through the history of child labor, the dominant evil is not accidents, or poisoning, or deformities, or specific disease, but the stress and fatigue of the immature body due to long and unsuitable hours of occupation. The only remedies are that (*a*) no child under 14 shall be exempted from education, half-time, or whole-time, for purposes of employment for profit; (*b*) no child attending school shall be employed out of school hours except at prescribed hours and for prescribed periods, and (*c*) the employment of all young persons from 14 to 18 should come under the medical supervision and control.

Marriages

Lieut. Charles Hyatte Cherry, M. R. C., U. S. Army, Fort Riley, Kan., formerly of Chisholm, Minn., to Miss Rebecca O. Jacobs of Topeka, Kan., recently.

Lieut. William Lytle Ross, Jr., M. R. C., U. S. Army, Garden City, Long Island, N. Y., to Miss Ethel Jeanette Nixon of New York City, October 6.

Lieut. John Andrews Rogers, M. R. C., U. S. Army, Nashua, N. H., to Miss Edith Pearl Batchelder of Framingham, Mass., September 8.

Paul Emerson Gilmor, M.D., a medical missionary in the Egyptian Sudan, to Miss Esther Margaret McCracken of Pittsburgh, September 5.

Lieut. Edward Foulke Corson, M. R. C., U. S. Army, to Miss Esther Bisler, both of Philadelphia, in Chicago, October 15.

Lieut. Dana Byron Dishmaker, M. R. C., U. S. Army, to Miss Olga Bertha Haney, both of Kewaunee, Wis., October 20.

Lieut. Fay J. Ernest, M. R. C., U. S. Army, Topeka, Kan., to Miss Edith Knox of Topeka, in Kansas City, July 23.

Frederick Yates, M.D., Washington, D. C., to Mrs. Mary Estelle Archer of Chevy Chase, Md., September 20.

William Armitage Moncrieff, M.D., to Miss Beryl Stuart Smith, both of New Bedford, Mass., September 29.

Asst. Surg. Matthew F. Czubak, U. S. Navy, to Miss Rhoda Evans Gilles of Philadelphia, August 30.

Joseph Raoul Larochelle, M.D., to Miss Jeannette R. Roussin, both of Biddeford, Me., October 8.

John A. Ragone, M.D., Buffalo, N. Y., to Miss Margherita Agnes Tirendelli of Cincinnati, October 3.

Susan Anderson, M.D., Fraser, Colo., to Mr. George Schaus, at Prescott, Iowa, October 10.

Amos John Winkel, M.D., to Miss Helen Leigh Hunt, both of Hamburg, N. Y., October 13.

David Thomas Heyser, M.D., Emad, La., to Miss Ola Manning of Kinder, La., October 3.

Philip B. Newcomb, M.D., Bangor, Me., to Miss Dorothy Williford in New York, October 1.

Thomas H. Gilland, M.D., Greencastle, Pa., to Miss Daisy B. Daley of Baltimore, October 17.

George Milbry Gould, M.D., to Miss Laura Stedman, both of Atlantic City, N. J., October 3.

Herman Lucas Earl, M.D., Jewell, Ga., to Miss Ella Berry of Sparta, Ga., October 9.

Clark Jay Stevens, M.D., Rockville, Ind., to Miss Roxie Parker, at Chicago, October 17.

Russell J. Murdoch, M.D., to Miss Ruth M. Palmer, both of Blair, Neb., October 3.

George Alfred Felch, M.D., to Miss Janey E. Little, both of Boston, October 4.

Deaths

Richard Halsted Ward, M.D., Troy, N. Y.; College of Physicians and Surgeons in the City of New York, 1862; aged 80; a Fellow of the American Medical Association and American Academy of Medicine; a member of the Royal and Belgian microscopical societies; acting assistant surgeon in the Army during the Civil War; instructor in botany in 1867, and lecturer and professor in histology and microscopy in the Rensselaer Polytechnic Institute, Troy, from 1869 to 1872; governor and first vice president and chairman of the medical board of the Marshall Infirmary and Sanitarium since 1868; notable as a research worker in economic botany and microscopy and as an expert in microscopy; an honorary member of many foreign societies; died at his home, October 29.

LeGrand Atwood, M.D., Ferguson, Mo.; Washington University, St. Louis, 1849; aged 85; a member of the Missouri State Medical Association, and a life member of the St. Louis Medical Society, and president in 1885; surgeon in the Confederate Service during the Civil War; superintendent of the St. Louis Insane Hospital from 1886 to 1891, and of State Hospital for the Insane, No. 1, Fulton, in 1891 and 1892; lecturer on therapeutics and toxicology in St. Louis Medical College, and lecturer on nervous diseases in the Marion-Sims Hospital College, St. Louis; died at his home, August 2.

Robert Watts, M.D., New York; College of Physicians and Surgeons of the City of New York, 1861; aged 80; a member of the Medical Society of the State of New York; surgeon of the One Hundred and Thirty-Third New York Volunteer Infantry during the Civil War; consulting gynecologist to the Roosevelt Hospital, and consulting physician to the City and St. Mary's Children's hospitals; died at his home, October 15.

Charles Forbes, M.D., Rochester, N. Y.; College of Physicians and Surgeons in the City of New York, 1871; aged 73; for many years an instructor in natural science; a research worker especially in photography and electricity; inventor of the individual communion cup, in 1894; and more recently, of a gauze bandage, drain, and sponge roller; died in the Rochester General Hospital, October 2.

J. Homer Darling, M.D., Thompsonville, Conn.; Castledon, Vt., Medical College, 1859; aged 79; assistant surgeon of the Fifty-First Massachusetts Volunteer Infantry; and Acting Assistant Surgeon, U. S. Navy, during the Civil War; once president and for several terms a member of the local school board; died at his home, October 18.

Stephen Cassin Spalding, M.D., Shenandoah, Pa.; University of Maryland, Baltimore, 1870; aged 73; formerly a member of the Medical Society of the State of Pennsylvania; a director of the Citizens' Building and Loan Association and Shenandoah Mutual Fire Insurance Company; died at his home, October 11.

John Frank Simison, M.D., Romney, Ind.; Rush Medical College, 1881; aged 58; township trustee in 1885 and 1887, and a member of the legislature in 1907 and 1909; for many years a trustee of DePauw University; died in St. Elizabeth Hospital, Lafayette, October 15, a week after an operation for appendicitis.

Herbert M. Burritt, M.D., Hilton, N. Y.; University of Buffalo, N. Y., 1901; aged 44; formerly a member of the Medical Society of the State of New York; at one time health officer of Hilton; died in the Park Avenue Hospital, Rochester, N. Y., October 11, from pneumonia complicated by diabetes.

William R. Scott, M.D., Portland, Ore.; Jefferson Medical College, 1906; aged 38; formerly a member of the Oregon State Medical Association; was found dead at his Helix ranch, October 12, from the effects of a gunshot wound of the head, believed to have been accidentally self-inflicted.

Chauncey W. Chidester, M.D., Newark Valley, N. Y.; College of Physicians and Surgeons, Chicago, 1886; aged 70; formerly a member of the Medical Society of the State of New York; for many years coroner of Tioga County; died at his home, August 16, from arteriosclerosis.

James R. Edwards, Denton, Texas (license, Texas, years of practice, act of 1907); aged 77; a practitioner for fifty-six years; formerly a member of the State Medical Association of Texas; at one time health officer of Denton County; died at his home, October 12.

Floyd S. Farnsworth, M.D., Plattsburg, N. Y., Hahnemann Medical College, Philadelphia, 1885; aged 59; a member of the Medical Society of the State of New York; died at the home of his niece in Troy, N. Y., October 12, from cerebral hemorrhage.

Amos Avery Rittenour, M.D., Denver; George Washington University, Washington, D. C., 1900; aged 42; formerly a member of the Medical Society of Virginia, and a resident of Berkeley; died in the Sarah Leigh Hospital, Norfolk, Va., October 10.

Harvey W. Scales, M.D., Yorktown, Iowa; Medical College of Ohio, Cincinnati, 1879; aged 62; formerly a Fellow of the American Medical Association; a member of the Iowa State Medical Society; was found dead in his room, October 13.

James Daniel Hewett, M.D., New York City; New York University, New York City, 1868; aged 84; assistant surgeon of the Sixty-Sixth New York Volunteer Infantry, and later major; died at his home, October 13.

Daniel W. Owens, M.D., Mosheim, Tenn.; University of Tennessee, Nashville, 1890; aged 57; formerly a member of the Tennessee State Medical Association; died at his home, July 25, from Pott's disease.

Thomas Evans Elliston, M.D., Nashville, Tenn.; Vanderbilt University, Nashville, 1880; for six years a member of the Davidson County Court; died at his home, October 17, from cerebral hemorrhage.

William Ross, M.D., New York City; New York University, New York, 1894; aged 54; formerly a member of the staff of the New York and Bellevue hospitals; died at his home, October 18.

John Myrick Crocker, M.D., Cambridge, Mass.; Harvard Medical School, 1866; aged 72; a Fellow of the American Medical Association; died at his home, October 6, from heart disease.

Henry Julius Cohen, M.D., Brooklyn, N. Y., Cornell University, 1909; aged 29; died in the Methodist Episcopal Hospital, Brooklyn, October 18, after an operation for appendicitis.

Edwin Gillard, M.D., Sandusky, Ohio; Homeopathic Hospital College, Cleveland, 1872; aged 72; once professor of gynecology in his alma mater; died at his home, October 14.

Robert Burnsides Ferree, M.D., Pittsburgh, University of Pittsburgh, 1887; aged 54; a member of the Medical Society of the State of Pennsylvania; died at his home, October 15.

Samuel Ensign, M.D., Arborville, Neb., Geneva, N. Y., Medical College; aged 98; for many years a pharmacist; died at his home, August 19, from cerebral hemorrhage.

John F. Spencer, M.D., Moore's Hill, Ind.; Eclectic Medical Institute, Cincinnati, 1869; aged 75; a veteran of the Civil War; died at his home, October 1, from heart disease.

Berzelius D. W. Thompson, M.D., Sardinia, Ohio; Cincinnati College of Medicine and Surgery, 1886; aged 79; died at his home, July 23, from carcinoma of the liver.

John B. Marchard, M.D., Monticello, Mo.; College of Physicians and Surgeons, Keokuk, Iowa, 1882; aged 75; died at his home, September 4, from diabetes.

J. A. Bickett, Maryville, Mo.; a practitioner since 1866; aged 79; a veteran of the Civil War; died in a hospital at Leavenworth, Kan., September 21.

Theresa G. Breene Baum, M.D., Oil City, Pa.; University of Pittsburgh, 1910; aged 38; died at her home, August 5, after an illness of two years.

William Patrick Honan, M.D., Chicago; Bennett Medical College, Chicago, 1914; aged 30; died at his home, October 25, from heart disease.

Frederick Briggs Quackenbush, M.D., Philadelphia; Hahnemann Medical College, Philadelphia, 1901; aged 50; died at his home, October 6.

Leander James Crooker, M.D., Augusta, Me.; Dartmouth Medical School, Hanover, N. H., 1871; aged 80; died at his home, October 10.

William F. Clayton, M.D., Overlea, Md.; College of Physicians and Surgeons, Baltimore, 1906; aged 35; died at his home, October 12.

Jerome P. Marvin, M.D., Harrison, Ohio; Eclectic Medical Institute, Cincinnati, 1866; aged 71; died at his home, October 12.

David M. Ray, M.D., Bernie, Mo.; University of Tennessee, Nashville, 1878; aged 71; died at his home, about September 29.

Wade Minor Logan, M.D., Cincinnati; Miami Medical College, Cincinnati, 1869; aged 69; died at his home, October 11.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

SECRECY IN PATENT MEDICINES

One Concern Proves That the "Open Formula" Does Not Spell Ruin

The Journal has long insisted that one of the greatest evils connected with the "patent medicine" business is the element of secrecy. Practically every "patent medicine" manufacturer leads the public to believe, either by direct statements or by implication, that his preparations possess some marvelous and esoteric powers—due either to a peculiar combination of well-known drugs or to the presence of some mysterious drug about which the rest of the world is ignorant—not to be found in official products or in unofficial products made by competitors. Such claims, of course, are the sheerest humbug. There is not a "patent medicine" on the market today whose place could not better be taken by some official drug or combination of drugs. So long, however, as "patent medicine" manufacturers sell names instead of drugs it is possible for them to "get away with" claims that would be laughed to scorn if the element of mystery were eliminated.

It is for this reason that the nostrum makers declare that to give to the public the names and amounts of the therapeutically active drugs in their products would spell financial ruin. In many cases it doubtless would, but not for the reason assigned by those making the claim. It would destroy business in those cases in which even the nontechnically trained layman would recognize the absurdity of claims made for simple mixtures of well-known drugs.

One of the spokesmen for the "patent medicine" interests has said:

> ". . . it is practically impossible to prove that the therapeutic claims made for a preparation whose composition is not known are 'false and fraudulent.'"

This same spokesman declared that should "patent medicine" manufacturers be forced to make their formulas public "they will be supplying evidence which may result in their own undoing."

When the public prescribes for itself it has the right to know what it is prescribing. If it cannot be given this obvious prerogative without destroying an industry, then that industry should be destroyed. The facts are, of course, that no "home remedy" having any legitimate place in commerce would be destroyed by such a course, although it would, doubtless, do much to wipe out of existence the fakes, frauds and humbugs with which the public is at present afflicted.

These facts are suggested by a letter recently received from the manager of a "patent medicine" concern. This letter so completely refutes many of the misstatements made by the exploiters of fraudulent nostrums that we print it in full. It is worth reading:

> "*To the Editor:*—Let me introduce myself, first of all, as the Treasurer and General Manager of the J. C. Ayer Company, of Lowell, Mass. I come asking the privilege of placing before your readers the marked changes that have taken place during the past few years in the methods of conducting the business of this company in every state of the Union.
>
> "Some twenty years ago I was first placed in charge of said business, although I had known of it ever since my earliest recollection. Even at this beginning I had been a physician for twenty-five years and so became at once keenly aware of the fact that certain changes could be made to the benefit of the public, and then, of course, to the benefit of the company.
>
> "While a number of changes were made at once, it was only about ten years ago that the first radical change took place, namely, when we published our full and complete formulas on all the printed matter, cartons, bottles and boxes of medicine, said change having been continued to this very day. It is interesting to know that the Canadian government ruled that because of said publication of formulas we were entirely exempt from its Patent Medicine Act.
>
> "Another change, equally important at least, was made about that same time, when we placed on the market all our medicines entirely free from alcohol. This change was made because we believed, with all our might, that alcohol is a poison too powerful and too dangerous to be used as a medicine unless under the direction of a physician. Right here let me add that there is nothing secret about this; we percolate according to standard methods, recover the alcohol by distillation, and lastly add the glycerine.
>
> "Then came the hard problem of advertising, with its constant tendency to exaggerate and thereby to mislead. A weak advertisement always reads to me like bibble-babble, while an extra strong one too often shows that the writer has been carried to dizzy and dangerous heights! So it was decided, about three years ago, to discontinue all newspaper advertising, leaving only the *Almanac* through which to make announcements to the public.
>
> "Probably it is asking altogether too much of the busy editor to read some of the more recent editions of said *Almanac*, but it is certainly true that in writing them it has ever been my earnest effort to write in a more and more conservative way, with the thought that I, as a physician, was especially bound to use my knowledge in every possible way to advance the interests of the public health. I have also endeavored to completely eliminate everything that would have a tendency to make the well man think he was sick or the sick man think he was sicker; at the same time giving a good amount of practical every-day hygiene. One result is that our 1918 *Almanac* is quite a different affair from those of my earlier efforts.
>
> "But there were other changes needed. So about two years ago we omitted all kinds of literature accompanying our medicines; no pamphlets, no leaflets, no circulars, practically no printing whatever except the formula and dose on bottle, box and carton.
>
> "Such changes naturally bring up the question of the effect on the pocketbook. I can only speak for this company, and say that we are still pursuing these same methods with increased vigor and find them more and more satisfactory. Indeed, we have never once had the slightest idea of turning back to the tallow-candle age! Some people seem to forget the brilliant period in which we are living, with its remarkable common school system, good literature, cheap postage, extensive trollies, telephones, and so on, whereby even the most remote districts in the country are brought in closest contact with the very center of our largest cities. The old-time mystery is fast disappearing as the new-time education penetrates the darkness.
>
> Charles H. Stowell, M.D., Lowell, Mass."

Dr. Stowell was graduated by the University of Michigan Medical School in 1872. In printing his letter The Journal is not to be understood as endorsing the preparations of the J. C. Ayer Company, but it does endorse the business principles shown by the company. The formulas for some of the Ayer preparations are needlessly complex and of the shotgun-mixture type; however, not more so than some of the preparations in the Pharmacopeia and National Formulary. If ever mixtures of the shotgun type are excusable, it may be when such are used as home remedies that are taken without a real diagnosis—a rifle is of little use against an obscure mark!

The important points brought out by this letter, however, are that "patent medicines" without alcohol or other habit-forming drugs can be advertised with comparative conservatism and the public given detailed information regarding their composition and the company marketing them still flourish.

Correspondence

PROPOSED INVESTIGATION OF TRAINING AND OPENINGS FOR CRIPPLED SOLDIERS

To the Editor:—I have noted with interest several articles in recent issues of The Journal dealing with the general subject of occupations and training for the physically handicapped. It occurs to me that you may desire to be of some assistance to the Bureau of Vocational Guidance in a proposed survey of this field.

In cooperation with several organizations of national importance, we are considering an investigation of training and possible industrial openings for crippled soldiers and others who are physically handicapped. Our work would probably culminate in a publication dealing with the methods of reeducation used both in the United States and abroad, an account of the general occupations open to each class of the handicapped, and an intensive study of actual opportunities in some one section of the country, probably New England and some of the neighboring states. Funds will probably be available for investigation and publication.

Can you inform us of any other investigations of like character now going on, or can you give us the names and addresses of individuals or associations who would be likely to cooperate with us, or furnish us valuable information?

Any suggestion that you care to make regarding such an investigation, as to either method or scope, will be gladly received.

Please be assured that we will be very grateful for any assistance you may be able to render.

Roy W. Kelly,
Director, Bureau of Vocational Guidance, Harvard University, Cambridge, Mass.

STANDING OF ENGLISH MEDICAL WOMEN IN WAR WORK

To the Editor:—I am enclosing a copy of a letter received from Flora Miller, director in charge, Military Hospital, Endell Street, London, in reply to a request for exact information regarding the standing of the English medical women in the war work. As it is the first definite news that we have been able to obtain on this subject, we think it would be of interest to the public, and so ask you to reproduce it in The Journal.

Louise B. Deal, M.D., San Francisco.
Secretary, Organization of Women Physicians for Federal Recognition.

In reply to your letter to Dr. Garrett Anderson, I have pleasure in giving you the following facts about the employment of women doctors by the War Office.

The medical staff of this hospital is appointed by the War Office, and has entire charge and control of the hospital. The staff is graded and paid according to rank, namely, as Major, Captain or Lieutenant. None of us are commissioned, as a commission cannot be held by women under the present Army act of Great Britain, and as women cannot be attested or sworn in under that act.

We are given the position of officers with the pay and allowances of R. A. M. C. officers. In other military hospitals many women are employed. Some of these are graded and paid according to rank as we are here. Others are engaged as civilian practitioners at a flat rate of 24 shillings [$5.76] a day without uniform or other allowances. It should be noted that there are men doctors in military hospitals engaged on these terms also. Men so engaged are ineligible for general military service, and the War Office has a habit of regarding women as also ineligible for general service.

Our staff here has certain privileges. It is permanent and cannot be moved about by the War Office, and each member except Dr. Garrett Anderson and myself has an opportunity of terminating her appointment every six months.

WHAT FACILITIES DO HOSPITALS AFFORD FOR THE RECEPTION OF SPECIAL INTERNS?

To the Editor:—A committee representing all the associations of otolaryngologists on this continent has been at work for some years, in the endeavor to standardize the training of those who desire to enter on this specialty.

In contradistinction to the ophthalmologists, the committee is not proposing an examination for license by a federal board, but favors the obtaining of a special degree, D.Sc. (Otolaryngology), from the postgraduate departments of leading universities, on examination, after the completion of a definite course of training: (1) as an intern of a standard hospital in medicine, or surgery, or both, or a term of years in practice; (2) as intern in the otolaryngologic department of a standard hospital, for eighteen months, and (3) the attendance on a short course in such subjects as special anatomy, embryology and histology, physiology, pathology and bacteriology, neurology and physics in the postgraduate department of the university conferring the degree.

In order to be in a position to lay the scheme before the postgraduate boards of study of the universities, for their consideration, the committee must be informed what facilities are afforded by the hospitals of the continent, for the reception of special interns:

1. The total number of beds in each hospital.
2. The number of these set apart for otolaryngologic patients.
3. Whether these are under a departmental head.
4. Whether there is an intern set apart for this department.
5. The regulations regarding the intern service: Is there: (*a*) a rotation service; (*b*) a lengthy period confined to one department, or (*c*) a graduated term of service—juniors and seniors, etc.?

It hardly needs to be pointed out that should such a scheme as outlined above be brought into operation and be supported by the leading special and general hospitals, such hospitals would be insured a constant succession of satisfactory material, out of which to man the department of otolaryngology with responsible and earnest interns.

The first condition laid down above would make it reasonably certain that the interns in question would be possessed of a sound basic training, and with these, entrance on the special training of otolaryngology would be in no sense an experiment, but a deliberate investment of time, determined on after mature thought.

Moreover, when a rotation system of internship is in operation, the scheme outlined above would not interfere. The rotating intern would still take on the otolaryngologic service for six weeks or two months, acting in the capacity of junior on the service, and receiving much help from the chief intern.

Information as to the number of hospitals which have a regular department of otolaryngology is difficult to obtain. Any general hospital of 250 beds should have at least fifteen beds set apart for such patients, and these would occupy the full time of a houseman, provided he worked also in the outpatient service.

Any information which your readers can supply will greatly assist and will be appreciated.

On behalf of the committee,
D. J. Gibb Wishart, Toronto, Chairman.

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

THE PARESIS OF GUY DE MAUPASSANT

To the Editor:—I desire to know from a neurologic point how De Maupassant is classed. It occurs to me that by reason of the trend in his writings he must have been a sensualist, if not a sexualist, as much that he writes deals with this phase of human frailty. The fact that he died insane leads me to think that he was suffering from some type of sexual perversion. I shall be greatly obliged if you will direct me to the proper source for this information, if such is extant and available.

E. B. Hardin, M.D., Florence, Ala.

Answer.—Guy de Maupassant (1850-1893), the master of the short story, was of Norman extraction, and grew up around Rouen. In his youth he became a clerk in the Ministry of the Marine at Paris, in which he was but an indifferent employee, spending his time on the river as a *canotier*, or in learning the art of novel-writing with Gustave Flaubert. The latter, as Maupassant has testified, taught him to cultivate the faculty of vision as a means of attaining impeccable accuracy of statement, and conciseness of style, so that any object, from a pile of dirt to a human being, might be visualized in a few words. On the development of this faculty, his success as a writer of tales and travel sketches was based. He became the O. Henry of Paris, with the difference that the sexual side of life was glaringly emphasized in Maupassant's stories, a circumstance that added not a little to the success of his books. In personality, he was really a faun with sensual features and Crô-Magnon jaw, the sort of man who would brazenly take leave of companions in the street or on the river in order to visit a bagnio or a waterside brothel. He delighted in obscene effrontery, particularly in shocking high officials or functionaries of the government in the street or a railway station, by vociferating foul-mouthed expressions in a loud and offensive manner. He had a neurotic heredity, and during the last four years of his life developed all the symptoms of a general paralysis, the result of sexual dissipation, the abuse of drugs, and probable syphilitic infection. He attempted suicide in 1892, and died under painful circumstances, July 6, 1893.

Much has been written about the neurotic heredity and insanity of Maupassant, in particular, the Toulouse dissertation of Z. Lacassagne (La folie de Maupassant, Toulouse,

Society Proceedings

COMING MEETINGS

Amer. Public Health Association, Washington, D. C., Dec. 4-7.
Kentucky State Medical Association, Louisville, Nov. 6-9.
Southern Medical Association, Memphis, November 12-15.

INDIANA STATE MEDICAL ASSOCIATION

Annual Meeting, held at Evansville, Sept. 26-28, 1917

(Concluded from page 1469)

Tests Used to Detect Malingering

Dr. George F. Keiper, Lafayette: The recent draft for soldiers for the National Army has revealed the necessity of reviewing the tests used to detect malingering. Ninety per cent. of the men have been honest, and responded promptly and truthfully to the tests. The tests fall under two heads—objective, what the examiner hears and sees; and subjective, what the examinee hears and sees. Recruits must have 20/40 vision of one eye and 20/100 of the other, provided no organic disease exists, and their hearing must be 10/20 of normal. The Duane test, the Snellen test, the Graefe-Baudry, the Todd and many others are used for simulated blindness, while for hearing, the Weber-Kerrison test, and Bárány noise apparatus are among those used. With these, malingering may be detected in a great majority of cases. Some may baffle the surgeon for a time, but if persisted in they will ultimately come to light.

DISCUSSION

Dr. E. M. Shanklin, Hammond: My work along this line has been in connection with the various industries of our region, in which I have to deal with many foreigners. We have always had to contend with some members of the legal fraternity, and since the inauguration of the industrial board, the "ambulance chasers" have taken to instructing their clients how to evade the examinations. However, we are usually able by some of these tests to find the malingerer.

Prostatic Hypertrophy

Drs. W. N. Wishard and H. G. Hamer, Indianapolis: This may involve the entire organ, or the increase in size may be confined to one lateral lobe or to the median portion. Of greater importance than the size is the change it works on the outlet of the bladder. The symptoms of prostatic hypertrophy are those mainly due to mechanical obstruction, but are augmented by infection producing pain and frequency of urination. The severity of the symptoms ordinarily bears a direct relation to the character and degree of obstruction, although this does not necessarily indicate the size of the growth, as the growth may be a small, pedunculated middle lobe acting as a ball valve obstruction and producing complete retention; and if the element of infection is added, the symptoms of pain and desire to urinate will become extreme; whereas a symmetrical growth may reach an enormous size without producing more than a slight increase in the frequency of urination. The suprapubic operation has given good results, in that bladder function is restored and there is less danger to other structures as well as less interference with the function of other organs. It has fewer complications and is more certain of cure.

Dr. Charles M. Mix, Muncie: There seems to be a lack of interest among the general practitioners in surgery of the prostate, due not so much to lack of knowledge as to the result of unhappy experiences. The general practitioner is in an expectant attitude. Surgery must demonstrate the value of the more recent methods of surgical interference. The best answer is a number of old men in a community who have been relieved and will recommend the operation to other sufferers.

DISCUSSION

Dr. W. N. Wishard, Indianapolis: I am not by any means convinced that surgery of the eye, surgery of the nose and throat, and surgery of the ear is altogether legitimate surgery for the general practitioner. Neither am I convinced that surgery of the prostate is best done by the general surgeon, for the reason that there is a very considerable detailed technic involved in the diagnosis, proper treatment, and in the operation itself, which necessarily is a special department of work. We have today some highly competent general surgeons who have become very good prostatic surgeons. A man must be a skilled cystoscopist before he undertakes to do work on the prostate, and it is important that one should carefully understand, follow and cover as completely as may be other questions of pathology that are involved in the sometimes prolonged preliminary treatment.

Dr. Louis Frank, Louisville, Ky.: The most important elements in the success of prostatic surgery are careful preparation of the patient, wise selection of the anesthetic, and the control of hemorrhage at the time of operation. With care in these directions, the mortality may be very low; without it the mortality will be out of all proportion to what it should be.

Abdominal Wounds in War

Dr. J. Rilus Eastman, Indianapolis: The present war has witnessed important developments in the treatment of abdominal gunshot wounds. In previous wars it was held that gunshot injuries of the abdomen should be treated conservatively, as distinguished from the teaching of prompt operation in civil practice. The old plan of "rest and opium" still has some advocates, but the weight of opinion is in favor of applying in military practice the civil method of immediate operation (within twelve hours) in all penetrating wounds of the abdomen, especially when conditions include a skilled operator, trained assistants, a sufficient armamentarium, and last but not least, an aseptic environment. It is likely that the best explanation of the improved statistics of operation in this war is to be sought in the favorable conditions of the trench, the battle lines being in the main more stable than in former wars and allowing of better preparation for operating near the front. A smooth, undeformed bullet, as a rule, makes a small, easily sutured opening in a hollow viscus, unless the shot is tangential to the intestine. However, such a bullet usually produces an irregular laceration of a parenchymatous organ, the aperture of entrance being smaller and more clear cut than the aperture of exit. Irregularly deformed bullets naturally produce larger and more ragged wounds than do smooth ones. For example, the fragmented nickel or steel mantle partially split off and projecting from the lead center bullet may do frightful damage. Large grenade fragments do not, as a rule, penetrate deeply, but often cause extensive crushing and laceration of the abdominal wall. Small grenade fragments often do very little injury on the surface, but the wound is deceptive, the intra-abdominal injury being more serious. Shrapnel balls often remain impacted in the abdominal coverings, but do comparatively little damage. They rarely completely traverse the abdomen. Before operation is undertaken, simple nonpenetrating injury of the abdominal wall must be considered intelligently; also the question of whether conservative treatment, considering the patient's general state and surroundings, would not be better. Operation is not undertaken unless conditions are favorable for good operating. The general treatment of patients not to be operated on consists in rest in the recumbent position with shoulders raised and knees flexed, thus relaxing the abdominal muscles and giving comfort to the patient. An attempt to move the patient should be avoided, nor should he be permitted to move himself. If moved before operation, the Fowler position should be maintained during transport.

DISCUSSION

Dr. Murray N. Hadley, Indianapolis: What Dr. Eastman said regarding puncture wounds of the abdomen may be applied in civil practice. The first symptom he mentions, that is, the evidence of the presumptive peripheral wound, is all that is required in civil practice for an exploration. However, the points he brought out in regard to kidney and liver dulness and tenderness are all things which should be used by the civil surgeon to determine whether or not he should open the abdomen. It is not always easy to determine just what has happened even when the abdomen is opened.

Dr. W. D. Gatch, Indianapolis: During a street-car strike in Indianapolis a few years ago we had at the City Hospital twelve cases of gunshot wounds in the abdomen within a month, in which I operated under the most ideal circumstances and within half an hour. The total mortality in a small series of my cases is 40 per cent., and I believe the civil mortality ranges about 50 per cent. What Dr. Eastman said of wounds of the bladder was confirmed in these cases. In two cases the bullet had gone right through the kidney and down into the thigh. Both patients recovered.

COLORADO STATE MEDICAL SOCIETY

Forty-Seventh Annual Meeting, held at Colorado Springs, Sept. 25-27, 1917

(Concluded from page 1468)

Cesarean Section in Toxemia of Pregnancy

Dr. L. H. McKinnie, Colorado Springs: I have had twelve cesarean sections for the toxemia of pregnancy without a death. I have been favored in the handling of these cases in that I have seen the patients early, and they came from the hands of good obstetricians whose previous treatment and examinations could be depended on. These women have all had one or more convulsions. I have operated on two women who had had no convulsions before operation. One woman had a small pelvis, and it was expected that there would be more or less difficulty with the delivery. Twenty-four hours preceding the operation, the albumin in the urine had increased rather rapidly, and about ten hours before the operation, casts were found in the urine. The patient complained of slight nausea, and the blood pressure rapidly increased from 130 to 190. Taking into consideration the fact that we expected a very difficult and slow labor, and the patient's rapid increase of toxemia, we decided to do an abdominal cesarean section. This was done without difficulty under nitrous oxid-oxygen anesthesia. About three hours following the delivery she had one slight convulsion. Following this she had an uninterrupted recovery, the blood pressure rapidly decreasing and the albumin and casts clearing up in about seven days. The other case was somewhat similar in history, but had shown for some little time a suspicion of oncoming toxemia. I have delivered thirteen babies, with three deaths, twins of six months, and the one child of eight months.

DISCUSSION

Dr. M. J. Keeney, Pueblo: A young primipara, who has a well developed toxemia of pregnancy which does not improve under a short course of treatment, should be delivered by cesarean section. A study of the blood pressure of these women is very important in deciding on operative intervention.

Dr. Charles A. Ferris, Denver: Cesarean section, at the present stage of its development, is liable to abuse. An abdominal surgeon can open the abdomen of a woman and take out the baby at term with a good deal of ease, although he may not know anything about the obstetric indications for the operation. That is one large avenue of abuse of the cesarean operation, and is liable to bring the practitioner into disrepute. However, cesarean section is a well established therapeutic measure in properly selected cases.

Dr. H. G. Wetherill, Denver: I believe Dr. McKinnie succeeded in his series of cases because he gave these patients nitrous oxid gas. The great majority of the profession is unanimous in agreeing that chloroform should not be given to an eclamptic woman under any circumstances. Ether is certainly not the anesthetic of choice. The reaction on the kidneys and lungs, although slight, constitutes a definite danger, and ether should be avoided if possible. Nitrous oxid gas is the anesthetic of choice in operations on eclamptics.

Dr. W. F. Matson, Denver: I have been in the habit of waiting for a second convulsion before resorting to cesarean section; but we are guided by the case by which delivery might be brought about through the natural channel. A primipara, with a long rigid cervix, who has not had labor pains, should always have a cesarean section. On the other hand, a woman with an easily dilatable cervix, with a left occipito-anterior vertex presentation should be delivered through the natural channel.

Dr. O. M. Shivers, Colorado Springs: I am afraid that if we get too radical along the line of operating on eclamptic patients, general practitioners will be doing cesarean sections for other conditions that should be dealt with by less radical measures.

Acute Perforation of Abdominal Viscera

Dr. Chauncey E. Tennant, Denver: Surgeons have recently shown that in cases of abdominal injuries occurring at the battle front, the mortality of the patients not operated on is nearly three times as great as of those operated on. When these patients are operated on within the first eight hours after perforation, the larger percentage recover. It is imperative to make an early diagnosis, even at the expense of an exploratory operation.

Roentgen Diagnosis of Lesions of the Esophagus

Dr. J. A. Matlack, Longmont: In partial or complete obstruction of the esophagus, the roentgen method of examination is usually satisfactory and conclusive. In the hands of a trained operator the technic is simple, and the procedure is not uncomfortable to the patient. In all cases, final interpretation of the roentgen findings must be made only after careful consideration of all available clinical data.

A Few Difficulties in the Administration of Ether

Dr. D. E. Hoag, Pueblo: One of the best plans to secure complete muscular relaxation is to administer some preliminary narcotic, and to induce anesthesia slowly and evenly. In a large percentage of surgical cases there is a tendency to spasmodic closure of the air-way, and this is best counteracted by keeping the lower jaw pressed forward. Overriding teeth will sometimes prevent the lower jaw from coming forward. Pulling the chin away from the sternum or completely extending the head over the operating table is often of use in obstructed breathing. An artificial air-way is of great help. There are certain postures, namely, the prone and semiprone, in which the trunk weight may tell directly on chest expansion. If breathing becomes much embarrassed or ceases, the patient should at once be placed in the dorsal position, and the ordinary means adopted for restoring breathing. Lip friction, sponging the pharynx and tongue traction are all of help, and in desperate cases artificial respiration or laryngotomy must be resorted to.

Causes of Iritis and Allied Inflammations

Dr. Edward Jackson, Denver: Rheumatic iritis used to be ranked as next to syphilitic in frequency. In nearly forty years of practice, I have seen only one case of iritis arising during an attack of acute articular rheumatism. Focal infection has taken the place of chronic rheumatism in the list of causes. The particular organisms present in iritis are usually staphylococci and streptococci. The experimental work done by Rosenow and confirmed by Brown, Irons and Nadler seems to show that certain strains of streptococci are especially likely to cause iritis. Tuberculosis is the cause of many cases of uveal inflammation that were formerly not recognized as being due to it. Of my twenty-five cases, four were clearly tuberculous. Gonococcus infection has long been recognized as a cause of iritis, but its relative importance has been greatly underestimated. In my series there was but one case due to this cause. Gastro-intestinal autointoxication has of late years been recognized as an important cause of iritis, and treatment based on this view has been markedly successful, so that we might claim the diagnosis established by the therapeutic test. Of my twenty-five cases, five were put down as due to this form of poisoning.

The curative treatment of iritis is chiefly extra-ocular. The cause of the iritis should be ascertained and removed, or its deleterious influence removed so far as possible.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Diseases of Children, Chicago

October, XIV, No. 4

1 *Hunger in Infant. R. Taylor, Rochester, Minn.—p. 233.
2 *Hunger and Appetite Secretion of Gastric Juice in Infant's Stomachs. R. Taylor, Rochester, Minn.—p. 258.
3 *Studies in Nephritis of Children. L. W. Hill, Boston.—p. 267.
4 *Prophylactic Use of Pertussis Vaccine Controlled by Complement Fixation Test. E. J. Huenekens, Minneapolis.—p. 283.
5 Paroxysmal Tachycardia in Childhood. N. W. Brown, Baltimore. —p. 287.
6 Case of Pneumonia of Unusually Short Duration. H. B. Conrad, Baltimore.—p. 296.
7 Case of Pernicious Anemia in Boy of Eight Years. J. L. Morse and S. B. Wohlbach, Boston.—p. 301.

1. **Hunger in Infant.**—The material investigated by Taylor included five premature infants weighing from 1,200 to 2,500 gm., forty full term new-borns under 3 weeks of age, and eleven older babies, five between 1 and 2 months, two between 3 and 4 months, three between 4 and 6 months, and one boy of 2 years with a surgically induced gastric fistula made necessary by the effects of corrosive in the esophagus. The gastric movements of some of the infants were recorded only once; on others as many as twenty observations were made. The results of this work fully confirm Carlson and Ginsburg's report that the stomach of the new-born infant exhibits greater hunger contraction than does that of the adult. In normally developing breast fed babes, hunger is not ordinarily an immediate cause of crying. The average time required for the development of hunger in healthy infants gaining in weight and receiving a known sufficient amount of food is, in prematures, under one month, one hour and forty minutes, with a maximum of two hours and twenty minutes and a minimum of forty minutes; in full term infants under 2 weeks, two hours and fifty minutes, with a maximum of four hours and a minimum of two hours; in infants from 2 weeks to 4 months, three hours and forty minutes, with a maximum of four hours and thirty-five minutes and a minimum of three hours and twelve minutes. Hunger contractions occur in these infants long before the stomach has emptied. Consequently their presence is not in itself an indication that the stomach is ready for food.

2. **Hunger Secretion of Gastric Juice in Infants' Stomachs.**—In this study Taylor shows that there is no appetite or psychic secretion of gastric juice in the young infant. This disproves the present view, which, he says, is based on insufficient experimental evidence. The empty stomach of the hungry babe secretes a gastric juice which often is as acid as that found in the adult's stomach. The more profuse this secretion, the higher is its acidity. It contains pepsin. This secretion is not neutralized in the stomach, but flows out into the small intestine. Regurgitation through the infant's pylorus does not occur. Taylor suggests that therapeutic starvation in acute alimentary disorders and in summer diarrheas may owe its success in part to the heightened tonus of the alimentary tract, and in part to the pouring out of highly acid detoxicating and disinfecting gastic juice into the small intestine.

3. **Nephritis in Children.**—Four methods of testing kidney function in children are discussed by Hill: the added salt and urea test, the phenolsulphonephthalein test, the two-hour renal test, and the determination of the concentration of urea nitrogen in the blood. Of these tests the added salt and urea test is of little practical value in children. The determination of the blood urea is probably of slightly more value. The most valuable of the four tests discussed are the phenolsulphonephthalein test and the two-hour renal test, because they are simple to carry out, and because they give reliable and important information concerning the functional power of the kidney. These two tests supplement each other, and more valuable information can be obtained by using them together than by using either one singly. In general, repeated low functional tests at intervals of a few months mean a poor prognosis. High phenolsulphonephthalein excretion alone does not help one way or the other. High phenolsulphonephthalein excretion, normal blood urea, and a normal response to the two-hour test warrant a conclusion that the process is a mild one, that the kidneys are only slightly damaged, and that there is a good chance for ultimate recovery.

4. **Pertussis Vaccine Controlled by Complement Fixation Test.**—Huenekens' observations in seventeen cases would theoretically justify the prophylactic vaccination against pertussis. In none of the cases treated with small doses could any antibodies be demonstrated. Whereas, large doses, such as recommended by the New York City Health Department, showed antibodies in 44 per cent. of the cases. The freshly prepared vaccines were, apparently, more effective than the stock vaccines, as 60 per cent. of the patients treated gave positive fixation reaction. From this, it may be concluded that it is possible to immunize children against pertussis if sufficiently large doses of freshly prepared vaccine be used.

Archives of Pediatrics, New York

September, XXXIV, No. 9

8 *Appendicitis in Infants. I. A. Abt, Chicago.—p. 641.
9 Effect of Chilling on Experimental Pyelonephritis in Rabbit. H. F. Helmholz and B. Rappaport, Chicago.—p. 658.
10 *Unresolved Pneumonias: What Becomes of Them? J. H. Hess, Chicago.—p. 686.
11 Classification of Finkelstein. J. R. Gerstley, Chicago.—p. 691.
12 Empyema; Simple, Interrupted and Continuous Aspiration. H. M. Richter, Chicago.—p. 696.
13 *Prophylactic Vaccination Against Chickenpox. M. Michael, Chicago.—p. 702.
14 *Five Per Cent. Oatmeal Gruel in Infant Feeding. A. Levinson, Chicago.—p. 707.

8. **Appendicitis in Infants.**—Abt has collected from the literature of appendicitis eighty cases of the disease in infants under 2 years of age. Among the cases occurring among children under 3 months, are two possible instances of prenatal appendicitis. The first was a doubtful case in a newborn baby with an eventration and a hernia into the umbilical cord. The appendix of this patient was removed. The second occurred in a baby poisoned by the ingestion of mercuric chlorid and died forty hours after birth. The necropsy showed that the appendix was congested, twisted and bound to the cecum by numerous adhesions. Eighteen additional cases occurred in infants under 3 months. There were six cases in children from 3 to 6 months of age. Eleven cases occurred in children from 6 to 12 months, and forty cases occurred in children from 1 to 2 years. Manifest chill, which is rare in childhood, is infrequently noticed in the first stage of the disease. Temperature is unreliable. It may be very high, or in some instances it may be subnormal. Pulse usually corresponds to the temperature. When extensive peritonitis occurs, the pulse is rapid, weak and irregular. In adults, as in children, an abatement of severe symptoms sometimes occurs after the perforation of the appendix.

Constipation is the rule and occurs among the more severe types. Diarrhea occurs in the milder types, though both conditions may be present, one alternating with the other. When general peritonitis occurs, and paralytic ileus results, symptoms of bowel obstruction naturally follow. Traumatism or diseases of the alimentary tract occasionally seem to play a part in the production of appendicitis. Infection may take place through the lymphatics, or possibly, in some cases, it may be a direct extension from the cecum. In addition, appendicitis may occur after erysipelas, scarlet fever, pulmonary and pleural infections, tonsillitis and other diseases. Foreign bodies, such as worms in the appendix, may bear a direct causal relation. The blood examination in almost every case shows a polymorphonuclear leukocytosis. When general peritonitis occurs, or where the general defenses of the body are reduced and exhausted by severe sepsis, the leukocyte count may be low.

The diagnosis in young infants is difficult, and the mortality is high. Furthermore, the precise condition is frequently confused with intussusception, intestinal obstruction, diffuse pneumococcic peritonitis, pleurisy, pneumonia, gastro-enteritis, typhoid (rarely), ileopsoas abscess or coxalgia. Tenderness at McBurney's point, if it can be elicited, is of diagnostic importance, but, the appendix in children frequently lies deep, so that tenderness may be greater on the left than on the right side, or it may be deflected upward. Rectal examination is of great importance in such cases. When there is palpable resistance on the right side, in the presence of other symptoms, the diagnosis of appendicitis should be suspected.

10. **Unresolved Pneumonias.**—Hess emphasizes the fact that tuberculosis is frequently a complicating, if not primary factor in many of the fatal cases and unquestionably frequently a factor in delayed resolution in recovered cases. Empyema especially of the intralobular type must be excluded in all cases. Empyema and tuberculosis are the two complications to be most carefully watched for and treated, the former surgically, the latter symptomatically. The rare etiologic factors, such as syphilis, foreign body, metastatic and primary new growths, while uncommon, must not be overlooked. The diagnosis of nontuberculous interstitial pneumonia should always be made with great caution and after exclusion of all other conditions causing similar physical findings.

13. **Prophylactic Vaccination against Chickenpox.**—Thirty-two children in an institution were exposed to chickenpox and were given prophylactic vaccinations. Seven developed the disease, six between thirteen and sixteen days after vaccination. In the other instance the date was not known. Eight developed lesions at the site of vaccination between the tenth and fourteenth day, four of these developed chickenpox. Of the four, who had vaccinal lesions and who developed the disease, three had mild attacks and one a severe attack; of three who did not have vaccinal lesions two had severe and one a moderately severe attack. The ages of all who developed vaccinal lesions were between 2 and 5 years. This is true also of those who had chickenpox, except one girl of 7. It is evident that chickenpox is inoculable, as is shown by the development of lesions at the site of vaccination in eight of the thirty-two children vaccinated. This inoculation seems to take place more readily in young children, for the positive results were invariable in children under 5 years of age.

14. **Oatmeal Gruel in Infant Feeding.**—Levinson urges the use of oatmeal gruel as an important addition to infant food. The 5 per cent. solution is the most efficacious. It can be prepared very simply by washing grits in cold water and boiling for thirty minutes and then straining. Gruel can be given at any age with beneficial results. Its taking increases the appetite of the child, makes the stool homogeneous, and often relieves constipation. The gruel has high iron content. The caloric value of 1,000 gm. is 54 large calories.

Boston Medical and Surgical Journal

October, 11, CLXXVII, No. 15

15 Neurologic Indications for and against Operation in Traumatic Injuries Affecting Central Nervous System. J. J. Thomas, Boston.—p. 503.
16 *Indications for Operation on Traumatic Head Cases. E. H. Nichols, Boston.—p. 508.
17 *Temperature as Valuable Guide to Diagnosis, Prognosis and Surgical Treatment in Craniocerebral Traumatisms. J. W. Courtney, Boston.—p. 511.
18 *Indications for Laminectomy in Fracture of Spine, with Cord Symptoms. J. B. Hartwell, Boston.—p. 513.
19 *Fractures of Base of Skull at Massachusetts General Hospital. W. J. Mixter, Boston.—p. 518.
20 *Report of Cases of Fracture of Skull and Spine, from Fourth Surgical Service, Boston City Hospital. F. J. Cotton and W. F. Cotting, Boston.—p. 519.
21 Cholecyst-Duodenal Fistula. E. D. Gardner, New Bedford.—p. 523.

16. **Operation in Traumatic Head Cases.**—Nichols summarizes his paper as follows: Uncomplicated edema of the brain almost never requires operation. Slight laceration of the brain with persisting edema sometimes requires operation to prevent cerebral degeneration. Subtemporal method is the best operation. Slight extracerebral hemorrhage seldom requires operation; occasionally demands operation to avoid cyst formation; the operation of choice is always skin bone flap. Extensive extracerebral hemorrhage, from rupture of the middle meningeal artery, with or without focal symptoms, always should be operated on, and always by skin bone flap method. Basilar hemorrhage seldom can be cured by operation. When operation is performed it should be in selected cases, for relief of pressure, and usually by skin bone flap method. Intracerebral hemorrhage cannot be cured by operation, although pressure may be relieved. Fracture of the skull by itself, is of little importance except when compounded, when it may produce meningitis unless made aseptic. All depressed fractures involving the entire thickness of the skull should be elevated.

17. **Temperature as Guide in Craniocerebral Traumatisms.**—Personal experience leads Courtney to declares dogmatically that of all the diagnostic and prognostic manifestations of intracranial traumatisms, the temperature throughout stands supreme in the scale of importance. In intracranial hemorrhage unless the bleeding is very extensive and complicated by coexisting alcoholic intoxication, the temperature soon regains the normal and is seldom elevated more than a single degree throughout the entire course of the case, provided no extensive degree of contusion and no degree whatsoever of laceration be present. In uncomplicated contusion the range of the temperature is equally distinctive. In the generality of cases it rises quickly from the subnormal point caused by shock and may go as high as 102. Almost from the beginning its recessions are striking, a morning fall and an evening rise. In favorable cases the evening range gradually narrows to the normal point, the morning recession to a point but slightly subnormal. Toward the end, in unfavorable cases, temperature and pulse rise together and may reach a very high point.

In brain laceration the initial fall of temperature from shock is of extremely brief duration. The almost immediate trend of the temperature is steadily upward, and in severe cases it may rise to 104 or 105 in a few hours. An early and persistently high temperature after craniocerebral traumatism invariably denotes brain laceration. The occurrence of chills during the course of a case of head injury is not an indication of pus formation. The development of an arachnitic process is marked by a sudden jump in the temperature accompanied by such signs of cortical irritation as delirium, somnolence or great motor restlessness. In cerebral abscess the temperature is normal during a sinister period of quiescence which follows the antecedent activity of the process, and subnormal after an abscess has attained sufficient proportions to cause local manifestations of its presence.

18. **Laminectomy in Fracture of Spine with Cord Symptoms.**—The indications and contraindications for laminectomy in Hartwell's opinion are as follows: Laminectomy is absolutely contraindicated in all cases of fracture of the cervical segment of the spine in which there is a paralysis of the intercostal and abdominal muscles, and is contraindicated in all fractures of the spine, wherever located, with cord symptoms of immediate onset, however slight, if other severe injuries are demonstrable, or if the patient presents or has presented the signs of surgical shock. Laminectomy is contraindicated in cases of fracture of the spine with synchronous cord injury, in which the signs point to a complete crush of the cord, until at least four days have passed—the minimum time in which spontaneous improvement can be expected to manifest itself—and if no spontaneous improvement is shown that operation offers no real hope.

Laminectomy is justifiable in cases of fracture of the spine, accompanied by cord symptoms which do not point to a complete cord destruction, if the patient comes under observation within six hours, and if, during the period of observation, the cord symptoms are progressive. In such cases laminectomy with incision into the cord substance for drainage should be practiced at once. Laminectomy is urgently and immediately demanded in those cases of spinal fracture in which cord symptoms are of slow onset and progressive, and in those cases originally free from cord symptoms, in which medullary signs make a sudden appearance. Laminectomy is indicated in those fractures of the lumbar spine in which the cord symptoms indicate injury to the cauda equina, and in these cases an attempt to suture the crushed trunks should be made. Laminectomy is indicated in those cases of old fractures of the spine in which cord symptoms were originally absent or slight and of short duration, but in which the symptoms of pressure on the cord develop late.

19. **Fractures of Base of Skull.**—Mixter's statistics show that among 209 cases of fractures of the base of the skull treated expectantly there was a mortality of 58.3 per cent., whereas among ninety-two cases treated by operation the mortality was 43.4 per cent. Mixter says that decompression in the proper cases of fracture of the base of the skull markedly lowers the mortality. Localizing signs are of value but are certainly no more important than the evidences of increased intracranial pressure. Operation should be performed as early as possible, as late operations are much less effective. As a rule, the decision for or against operation can be made at once, but in a certain number of doubtful cases it is necessary to wait from six to twenty-four hours in order to observe the increase or decrease in symptoms. If the decision is made to postpone operation or not to operate at all, the patient is sent to the ward and the pulse, temperature and blood pressure watched and the condition of the eye grounds noted at intervals. Epsom salt, by the mouth or stomach tube, and an enema are usually given within a few hours. The general pressure symptoms and the general condition of the patient are of fully as great importance as an indication for operation as any localizing signs.

20. **Fracture of Skull and Spine.**—Of twenty-one cases of proved skull fracture, only seven were operated on by Cotton and Cotting; of these there were no deaths following operation save by way of sepsis—late; while of those not operated on there was one death in a hopelessly smashed case and only one death from alcohol combined with trauma in which operation after three to four days would perhaps have been better. It has been Cotton's rule not to do radical operations early, just to clean up compound damage and to await results. If one operates early there is a large percentage of deaths, occurring with curious accuracy ten or twelve hours after operation, from a combination of shock, uncontrollable leakage of blood and of cerebrospinal fluid. Certain cases like one of subdural hemorrhage cited, growing steadily worse from hemorrhage, must be operated on and take their chance. In the main, however, if one can wait, and one mostly can wait safely from forty-eight to seventy-two hours, then the bleeding has ceased, the shock is over, and one can operate or not, mostly not, without much risk and for definite reasons. Depressed fragments, signs of cortical pressure, persistent slowness in clearing of the mental state, with or without signs of actual pressure, are the indications and the only indications. In the early stages, particularly in base fractures, intracranial pressure is not the sole trouble; when they die it is apt to be from an operation which renews bleeding as it removes pressure, a bleeding from sinuses or little basal veins that one cannot control, which with the added trauma is enough to turn the scale.

California State Journal of Medicine, San Francisco

October, XV, No. 10

22 Recruiting Observations. J. Jacobs and W. D. Horner, San Francisco.—p. 391.
23 Urologic Diagnosis in General Practice. F. Hinman, San Francisco.—p. 392.
24 Treatment of Eclamptogenic Toxemia of Pregnancy; Report of Cases. E. N. Ewer, Oakland.—p. 401.
25 Radium; Its Local Application as *Therapeutic* Agent; Report of Cases. R. Duncan, Los Angeles.—p. 406.
26 Malaria Problem in Rice Fields. S. B. Freeborn, San Francisco.—p. 412.
27 Common Errors in Diagnosis of Syphilis of Skin and Mucous Membranes. G. D. Culver, San Francisco.—p. 414.
28 Late Correction of Malunited Fractures of Extremities. P. S. Campiche, San Francisco.—p. 420.

Iowa State Medical Society Journal, Des Moines

October, VII, No. 10

29 Retrospect and Prospect. Oration in Medicine. M. E. Witte, Clarinda.—p. 365.
30 Pleurisy—Symptomatology. J. W. Osborn, Des Moines.—p. 370.
31 Pleurisy—Etiology and Pathology. G. McConnell, Waterloo.—p. 372.
32 Pleurisy—Diagnosis and Prognosis. W. J. Findley, Sac City.—p. 374.
33 Pleurisy—Nonsurgical Treatment. R. L. Parker, Des Moines.—p. 378.
34 Surgical Treatment of Empyema. L. W. Littig, Davenport.—p. 379.
35 Unusual Opportunities for Surgical Work and Original Investigation. W. B. LaForce, Ottumwa.—p. 384.

Journal of Cutaneous Diseases, Chicago

August, XXXV, No. 6

36 *Clinico-Pathologic Study of Unusual Cutaneous Neoplasm Combining Nevus Syringadenomatosus Papilliferus and Granuloma. J. H. Stokes, Rochester, Minn.—p. 411.
37 *Gel Test. A. Strickler, Philadelphia.—p. 426.
38 Perlèche: Review of Literature. J. E. Lane, New Haven, Conn.—p. 433.
39 Sporotrichosis. Clinical and Histopathologic Report of First Case to be Published in New England. J. H. Blaisdell, Boston.—p. 452.
40 Skin Diseases of Porto Rico. W. W. King, Washington.—p. 459.
41 *Cutaneous Metastases in Hodgkin's Disease. H. E. Alderson, San Francisco.—p. 481.
42 *Herpes Zoster Focal Infection. E. S. Lain, Oklahoma City.—p. 486.
43 Dermatitis Factitia and Neurotic Gangrene. C. A. Simpson, Washington.—p. 493.
44 Lupus Erythematosus and Its Management. F. Wise, New York.—p. 500.
45 Erythrodermie Congenitale Ichthyosiforme; Report of Cases and Review of Literature. G. M. MacKee and I. Rosen, New York.—p. 511.

36. **Syringadenoma.**—The case presented by Stokes offers the extremely rare combination of a nevus of the sudoriparous glands with a highly vascular granuloma containing large numbers of lymphocytes, plasma and mast cells in a fibroblastic stroma, suggesting in many ways a granuloma pyogenicum or a vegetating dermatitis. All stages in the histogenesis of such a nevus, according to the conception of origin in epithelial rests and inclusions (Cohnheim), seemed to be represented in the material from this case.

37. **"Gel" Test.**—Eighty-seven Gel tests were made by Strickler and in all, control Wassermanns were also made. In doing the Wassermann, three antigens were employed: cholesterinized beef heart, acetone insoluble lipoids of Noguchi, and alcoholic extract of syphilitic liver. The complement unit was a fixed one, the amboceptor titrated before each test and two units employed; 2.5 per cent. suspension of sheep cells was used. In doing the Gel test, all the serums were subjected to the ammonium sulphate test, while about forty serums were subjected to the acetic acid thorium sulphate test. In this series of eighty-seven serums, fifty-nine patients gave a history of syphilis or had syphilitic lesions; practically all were under treatment. All these serums gave positive Wassermann reactions, while only forty-seven gave positive Gel tests. The serum of twenty-eight individuals suffering with various skin affections and several with no lesions whatever were tested. All gave negative Wassermann tests, sixteen gave negative and twelve serums gave positive Gel tests. Therefore it is Strickler's belief that the Wassermann reaction is the best test for syphilis.

41. **Cutaneous Metastases in Hodgkin's Disease.**—Alderson's patient had Hodgkin's disease involving the cervical, axillary and mediastinal glands, as demonstrated clinically and histopathologically. He developed on both legs hard, immovable, painless, noninflammatory tumors which softened and broke down, leaving ulcers clinically indistinguishable from syphilitic gummas. In spite of numerous negative Wassermanns, including several following two provocative injections of salvarsan, mercury and potassium iodid were administered. The salvarsan-mercury-iodid treatment caused only temporary improvement. Roentgen therapy (Coolidge tube) applied to the lesions, rapidly caused complete filling in of the ulcers. Sections of tissue taken from the edge of one of the ulcers before treatment showed the condition to be metastatic Hodgkin's disease of the subcutaneous tissue and skin.

42. **Herpes Zoster Focal Infection.**—Finding a constant association of zoster with alveolar and tonsillar disease processes, leads Lain to believe that true herpes zoster has its origin in a focal infection.

Journal of Nervous and Mental Disease, Lancaster, Pa.

September, XLVI, No. 3

46 *Symptomatology of Certain Infectious Processes Involving Ciliary Ganglion or Its Connections. L. Archambault, Albany, N. Y.—p. 161.
47 Cerebrospinal Fluid Tests, Especially Gold Reactions in Psychiatric Diagnosis. L. G. Lowrey, Boston.—p. 186.

46. **Symptomatology of Infectious Processes of Ciliary Ganglion.**—In all the cases included in Archambault's paper, the symptoms had an acute onset and followed either evidence of general infection or toxemia or else actual infectious processes about the orbits and nasal fossae. The symptoms were strictly local and repeated neurologic examinations failed to disclose any sign of involvement of the cerebrospinal axis. In Archambault's opinion there can hardly be any doubt therefore that the symptoms observed were dependent on pathologic changes within the orbit. This does not mean that infiltration at the sphenoidal fissure and optic foramen cannot materially interfere with the vascular and subarachnoidean exchanges at the base of the brain and thus determine secondarily more or less functional disturbance referable more particularly to the interpeduncular space and acoustico-cerebellar recess. The nature of the infection in these various cases is difficult to establish even tentatively. In all of them, with one exception, the Wassermann reaction was negative which naturally did not exclude syphilis, and in some of the cases, active antisyphilitic medication was followed by prompt and marked improvement. Even this, however, is not positive proof that the nature of the lesion was syphilitic. In some of the cases specific medication yielded absolutely no results and the condition either remained stationary or cleared up apparently under other forms of treatment. Several of the cases occurred either at the beginning or toward the end of an epidemic of poliomyelitis and some of these patients actually lived in districts from which cases of poliomyelitis were known to have been reported. It occurred to Archambault that these ocular syndromes might possibly represent another clinical modality of poliomyelitis. In most of the cases, the occupation or avocation of the patient was such as to throw undue and persistent strain on the accommodative apparatus.

Archambault concludes that while foci of disease involving the brain stem and more particularly the region of the sylvian aqueduct and corpora quadrigemina undoubtedly do produce, usually along with other symptoms, the accommodation convergence paralysis syndrome, there seems to be little ground for the assumption that this syndrome, occurring as an isolated and purely transitory clinical manifestation, is due to an elective central localization. The fact that this syndrome develops after a number of infectious and toxic states known to give rise essentially to lesions in the peripheral nerves, and that it likewise follows local infectious processes about the orbit and nasal fossa, appears to Archambault to justify the belief that it is dependent on degenerative changes involving either the ciliary ganglia or their immediate connections.

Maine Medical Association Journal, Portland

October, VIII, No. 3

48 Best Method of Securing Pathologic Specimens for Laboratory Examinations. F. N. Whittier, Brunswick.—p. 69.

Medical Record, New York

October 13, XCII, No. 15

49 Osmosis, an Immunizing Factor in Tuberculosis. P. S. Bailey, Fort Bayard, N. M.—p. 618.
50 Management of Decubitus, System in Use at Kings County Hospital. W. Browning, Brooklyn.—p. 622.
51 Recent Advance in Treatment of Kidney Disease. J. R. Williams, Rochester.—p. 624.
52 Electricity Then and Now. W. Travell, New York.—p. 627.
53 Molokai Leper Settlement. E. S. Goodhue, Honolulu, Hawaii.—p. 629.
54 Etiology of General Paralysis. B. Lemchen, Dunning, Ill.—p. 632.
55 Balancing Body Metabolism and Quartz Ultraviolet Light. D. McCaskey, New York.—p. 633.
56 Persistence of Ulceration. J. Van Becelaere, Detroit.—p. 635.

Michigan State Medical Society Journal, Grand Rapids

October, XVI, No. 10

57 Two Cases of Cerebellar Cyst. A. S. Kitchen, Escanaba.—p. 431.
58 Plea for Intelligent Tonsillar Surgery. C. H. Long, Chicago.—p. 436.
59 Pyelitis in Children. H. W. Long, Escanaba.—p. 438.
60 Vesicle Calculus. A. K. Bennett, Marquette.—p. 440.
61 Treatment of Fractures and Results Obtained as Observed in Military Hospitals of Austria. G. J. Korby, Ishpeming.—p. 443.

New Jersey Medical Society Journal, Orange

October, XIV, No. 10

62 Indigestion and Other Protective Symptoms. D. E. Drake, Newfoundland.—p. 379.
63 Increased Eye Tension and Blood Pressure; Report of Twenty Cases. H. Vaughan, Morristown.—p. 386.
64 Education in Development of Physician. G. K. Dickinson, Jersey City.—p. 389.
65 Plea for Greater Exactness in Diagnosis and Treatment of Tuberculosis. R. C. Newton, Montclair.—p. 391.

New York Medical Journal

October 13, CVI, No. 15

66 Psychologic and Therapeutic Value of Studying Mental Content During and Following Epileptic Attacks. L. P. Clark, New York.—p. 677.
67 Onions in Tuberculosis. W. Lintz, New York.—p. 683.
68 Health Insurance. W. P. Cunningham, New York.—p. 683.
69 Id. A. Schachner, Louisville, Ky.—p. 686.
70 War Depletion of American Medical Profession. A. L. Benedict, Buffalo.—p. 690.
71 Differential Diagnosis in Cases of Suspected Pulmonary Tuberculosis. A. Minnig, Denver.—p. 692.
72 Portable Operating Table Attachment. T. C. Stellwagen, Jr., Philadelphia.—p. 694.
73 Simple Painless Technic for Salvarsan Intravenous Administration. C. C. Miller, Chicago.—p. 696.
74 Circumruption of Prepuce in Lieu of Circumcision. F. K. MacMurrough, Jersey City, N. J.—p. 698.

Northwest Medicine, Seattle

October, XVI, No. 10

75 Medical Profession and War. S. C. Baldwin, Salt Lake City.—p. 291.
76 Principles Underlying Successful Treatment of Achylia Gastrica and Chronic Connective Tissues Lientery. N. W. Jones, Portland, Ore.—p. 295.
77 Physiology of Gallbladder Under Normal and Morbid Conditions. C. S. Leede, Seattle.—p. 298.
78 Report of One Hundred and Five Consecutive Gallbladder Operations. Primary Cholecystectomy vs. Cholecystostomy. A. A. Matthews, Spokane.—p. 302.
79 Autoserum Treatment of Chorea (Goodman); Report of Cases. E. M. Tarr, Boston.—p. 308.
80 Four Point Survey for Localization of Foreign Bodies Without Use of Roentgenograms. E. O. Houda, Tacoma.—p. 311.

Ohio State Medical Journal, Columbus

October, XIII, No. 10

81 Sarcoma of Stomach. F. Warner, Columbus.—p. 647.
82 Some Bacteriologic Findings in Conjunctivitis. R. B. Metz, Cleveland.—p. 649.
83 Points in Treatment of Syphilitic Brain Conditions. G. H. Williams, Columbus.—p. 651.
84 Tumors of Urethra and Vesical Sphincter. J. F. Elder, Youngstown.—p. 653.
85 Veratrum Viride and Pilocarpin Hydrochlorate. H. F. Biggar, Cleveland.—p. 655.
86 Inflammation of Eyes of New-Born; Observations of Operation of Present Law. J. E. Bauman, Columbus.—p. 656.

Oklahoma State Medical Association Journal, Muskogee

October, X, No. 10

87 Syphilis of Nervous System. D. W. Griffin, Norman.—p. 383.
88 Hereditary Syphilis. W. L. Kendall, Enid.—p. 387.
89 Ocular Manifestations of Syphilis. J. H. Barnes, Enid.—p. 388.
90 Early Treatment of Syphilis; Its Prevention and Cure. R. T. Edwards, Oklahoma City.—p. 392.
91 Treatment of Latent Syphilis. P. P. Nesbitt, Muskogee.—p. 397.
92 Application of Clinical Laboratory to Diagnosis and Treatment of Syphilis. O. J. Walker, Oklahoma City.—p. 400.

Philippine Journal of Science, Manila

March, XII, Sec. B, No. 2

93 *Experimental Cholera Carriers and Immunity. O. Schöbl and C. S. Panganiban, Manila.—p. 43.
94 Anatomicopathologic Lesions in One Thousand Filipino Children Under Five Years of Age. M. P. Mendoza-Guazon, Manila.—p. 51.
95 *Bacteriologic Investigation of Feces and Bile of Cholera Cases and Cholera Carriers. B. C. Crowell and J. A. Johnston, Manila.—p. 85.

93. **Cholera Carriers and Immunity.**—Schöbl and Panganiban found specific immune bodies in the blood serum of experimental cholera carriers (guinea-pigs and rabbits). Specific immune bodies were found to be absent in the normal bile of a highly immunized rabbit. In confirmation of Viole's findings specific antibodies were found to be present in the gallbladder contents of infected rabbits. The percentage of

takes in guinea-pigs that received preventive inoculation or vaccine treatment was as high as in untreated carriers. Preventive vaccination and vaccine therapy effected no apparent shortening of the duration of cholera carriers in guinea-pigs.

95. **Feces and Bile of Cholera Cases and Carriers.**—The intestinal contents and the bile of 269 cases of cholera and cholera carriers were examined by Crowell and Johnston. In 212 cases of cholera the vibrio was found in the bile in 65.2 per cent. and only in the bile in 5.7 per cent. In thirty-two cholera carriers detected after death, the cholera vibrio was found in the bile in 75 per cent. and only in the bile in 43.7 per cent. In cholera carriers the vibrio was present in the bile in 10 per cent. more cases than in cholera cases and only in the bile in 38 per cent. more than in cholera cases. From this the importance of routine examination of both bile and feces becomes apparent. Five patients that were known to have been carriers before death were examined after death, and only in the one with the shortest period between detection and death (thirty-seven days) was the vibrio found. In that case the vibrio was isolated from the bile only. Thirty strains of nonagglutinable vibrios, isolated from the feces and bile of cholera cases, cholera contacts, and others, have been studied. When first isolated, these were not agglutinated by high titer cholera immune serum. By growth in bile eight of these strains acquired the agglutinability. Five of these eight strains retained this property, and the other three lost it after cultivation for a period of two months. In six cases that were clinically and anatomically cholera, the cholera vibrio was not isolated from either the feces or the bile. Such cases occur in a large series of cholera cases.

Southwestern Medicine, El Paso, Texas

September, I, No. 9

96 Traumatic Hernia. J. E. Bacon, Miami, Ariz.—p. 9.
97 Successful Use of Autogenous Vaccines in Mixed Infection in Tuberculosis. W. R. Smith, El Paso.—p. 13.
98 Carcinoma of Male Breast; Report of Case. C. S. Vivian, Humboldt, Ariz.—p. 17.
99 Smallpox. I. J. Bush, El Paso.—p. 21.
100 Medicosurgical and Legal Aspect of Few Injury Cases, as Seen through Eyes of Corporation Physician. W. A. Holt, Globe, Ariz.—p. 26.

Southwest Journal of Medicine and Surgery, El Reno, Okla.

October, XXV, No. 10

101 Autointoxication. C. W. Tedrowe, Elk City.—p. 247.
102 Tubal Pregnancy; Report of Case. F. M. Sanger, Oklahoma City.—p. 251.
103 Double Undescended Testicles; Report of Case. F. M. Sanger, Oklahoma City.—p. 253 .

Surgery, Gynecology and Obstetrics, Chicago

October, XXV, No. 4

104 *Report of Eight Cases of Syphilis of Stomach. W. A. Downes, New York.—p. 361.
105 Complete Bony Ankylosis of Jaw; Report of Three Cases Cured by Operation. W. P. Carr, Washington, D. C.—p. 367.
106 *Recurrence of Gallstones. J. B. Deaver, Philadelphia.—p. 371.
107 America's Place in Surgery of World. T. S. Cullen, Baltimore.—p. 376.
108 *Substitution of Anal for Vesical Sphincter in Certain Cases of Inoperable Vesicovaginal Fistulae. R. Peterson, Ann Arbor, Mich.—p. 391.
109 Subtotal Thyroidectomy. W. Bartlett, St. Louis.—p. 402.
110 Study of Modern Operations in Hypospadias from Anatomic and Functional Standpoint. J. E. Thompson, Galveston, Texas.—p. 411.
111 Conservative Foot Surgery; Report of Case. J. P. Lord, Omaha.—p. 422.
112 Caisson Bronchoscopy in Lung Abscess Due to Foreign Body. C. Jackson, Philadelphia.—p. 424.
113 Cystic Hygromas and Other Tumors Occurring in Infancy; Report of Cases. R. Winslow, Baltimore.—p. 428.
114 Ligation or Excision of Pelvic Veins in Treatment of Puerperal Pyemia. C. J. Miller, New Orleans.—p. 431.
115 Treatment of Puerperal Pyemia. B. C. Hirst, Philadelphia.—p. 452.
116 Nonoperative Treatment of Gunshot Fractures of Femur. J. R. Eastman, Indianapolis, and R. B. Bettman, Chicago.—p. 456.
117 Observations in Military Surgery. W. A. Clark, Chicago.—p. 463.

104. Abstracted in THE JOURNAL, Jan. 27, 1917, p. 308.
106. Abstracted in THE JOURNAL, June 20, 1917, p. 222.
108. Abstracted in THE JOURNAL, Jan. 20, 1917, p. 221.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

British Medical Journal, London

September 29, II, No. 2961

1 *Etiology and Treatment of War Neuroses. A. F. Hurst.—p. 409.
2 *Investigation of Trench Nephritis by Means of Phenolsulphonephthalein. A. G. Auld.—p. 414.
3 *Occurrence of Spirochetes in Urine. J. L. Stoddard.—p. 416.
4 *Spirochetes Occufring in Urine of Cases of Pyrexia of Unknown Origin. S. W. Patterson.—p. 418.
5 Acute Syphilitic Meningitis. S. A. K. Wilson and A. C. E. Gray.—p. 419.
6 Eusol Treatment of Wounds Infected with Bacillus Pyocyaneus. P. Turner and G. Richardson.—p. 421.
7 Ionic Medication: Method of Administration. L. Kesteven.—p. 423.
8 Case of Acholuric Jaundice Treated by Splenectomy. R. Hill.—p. 424.

1. **Treatment of War Neuroses.**—Hurst discusses: 1. Exhaustion resulting in neurasthenia and soldier's heart. 2. Emotions resulting in stupor and amnesia, psychasthenia, hysteria, hypersuprarenalism and hyperthyroidism, and exaggerated defensive reflexes: (*a*) stupor and amnesia; (*b*) psychasthenia; (*c*) hysterical symptoms; (*d*) hypersuprarenalism and hyperthyroidism; (*e*) exaggerated defensive reflexes. 3. Shell shock: 1. Pure concussion: (*a*) cerebral concussion; (*b*) spinal concussion. 2. Hysterical symptoms grafted on to organic basis of cerebral or spinal concussion.

2. **Phenolsulphonephthalein Test in Trench Nephritis.**—The cases studied by Auld were young soldiers discharged from the hospitals abroad after the acute symptoms had subsided. As a matter of fact, the test is useless in acute cases. The complete results are based on forty-two selected cases. The routine consisted in making the test soon after the patient's admission, and repeating it at intervals of about three weeks. Concomitantly the blood pressure was recorded. The cases in the second month of the disease showed phenolsulphonephthalein elimination varying from 15 to 50 per cent., or over in one hour. If, within three months from the onset of the disease, the phenolsulphonephthalein excretion rises to 40 per cent., or over in one hour, recovery will be good, even should albuminuria continue for another two months or possibly longer. For part of this time casts may also be present. If, at the end of the third month, the phenolsulphonephthalein excretion be under 30 per cent. in one hour, notwithstanding a slight degree of albuminuria, or with intermitting albuminuria, recovery will be protracted, and in some of the cases unsatisfactory. If, at the end of four months the phenolsulphonephthalein excretion reaches 40 per cent., or over, ultimate recovery is the rule, even should the albuminuria last for several months longer. If the excretion remains persistently low (15 to 30 per cent.) up to the fourth or fifth month, the prognosis is unfavorable without reference to the presence or degree of albuminuria. Several such patients reporting themselves after eight to nine months still presented a low index of elimination and slight albuminuria. As to the final issue, it is difficult to say, but the fact that they all had either normal blood pressures, or slightly over, seems to presage in some of these a favorable result.

3. **Spirochetes in Urine.**—A series of 100 men without history or symptoms of relapsing fever showed intra-urethral spirochetes in 33 per cent. of the cases. If spirochetes of the refringens type are included, the incidence rises to 44 per cent. The spirochetes occurred in about 1 in 2¼ men sick of miscellaneous medical and surgical conditions, and in 1 in 5 of healthy men. Stoddard believes that the variety of organisms makes it improbable that the mere finding of spirochetes in the urine can have any diagnostic value in relation to the relapsing fevers until definite morphologic or other differences are established between the various normal and pathogenic varieties.

4. **Spirochetes in Urine of Cases of Pyrexia.**—Patterson states that spirochetes may occur in: 1. A disease with acute onset with chills and vomiting, pain in the abdomen, usually more marked in the right upper quadrant, with continued fever for several days, often with enlargement of the spleen

and herpes of the lips. The pulse rate is not increased, and is usually slowed to 50 or 60 beats a minute in convalescence. There is a leukocytosis of 12,000 to 25,000 with relative increase in the large mononuclears. The cases, if an attempt is made at diagnosis, come to the base as "appendicitis," or "N. Y. D. abdominal"—the initials "N. Y. D." standing for "not yet diagnosed." In these patients Patterson finds spirochetes almost constantly in the urine. 2. The relapsing type of P. U. O. (trench fever) with the characteristic periodic rises of temperature, myalgic and periosteal pains, and leukocytosis with or without enlargement of the spleen, in which an improving technic has enabled Patterson more and more frequently to find a spirochete in the urine during and immediately after the exacerbations of temperature.

Journal of Laryngology, Rhinology and Otology, London

September, XXXII, No. 9

9 An Air Raid Case. M. Yearsley.—p. 273.
10 Cases of Facial Deformity Treated in Department of Plastic Surgery at Cambridge Hospital, Aldershot. H. D. Gillies.—p. 274.
11 Ozena Among Various Races of Earth. J. N. Roy.—p. 283.

Lancet, London

September 22, II, No. 4908

12 *Wound Treatment by Introduction of Living Cultures of Spore-Bearing Anaerobe of Proteolytic Group. R. Donaldson and J. L. Joyce.—p. 445.
13 *Liquid Tight Closure in Treatment of Wounds. W. H. Taylor and N. B. Taylor.—p. 452
14 *Operation for Radical Cure of Inguinal Hernia. R. V. Slattery.—p. 455.
15 Blood Pressure and Surface Temperature in One Hundred and Ten Cases of Shell Shock. E. M. N Green.—p 456.
16 Fractured Base of Skull: Subsequent History of Case and Its Termination Twenty-Four Years After Accident. J. B. Christopherson.—p. 458.
17 Unusual Renal Calculi with Severe Hemorrhage as Only Important Symptom. J. D. Malcolm.—p. 459.
18 Awkward Prescriptions A. W. Bromley.—p. 472.
19 Biologic Aspects of Warfare. H. Campbell.—p. 469. To be concluded.

September 29, No. 4909

20 Malaria. C. Christy.—p. 485.
21 *Treatment of Subtertian Cerebral Malaria with Quinin and Galyl. A. W. Falconer and A. G. Anderson.—p. 486.
22 Surgery Next Door to Front. T. B. Layton.—p. 488.
23 *Germicidal Power of Flavine. R. T. Hewlett.—p. 493.
24 Open Flap Method of Treating Perforating Brain Wounds. J. G. Hunt.—p. 494.
25 Mediastinitis as Cause of Heart Failure. H. L. Whale.—p. 495.
26 Biologic Aspects of Warfare. H. Campbell.—p. 505.

12. **Wound Treatment by Living Cultures of Spore-Bearing Anaerobes.**—The key to the situation according to Donaldson and Joyce depends on two observations: one clinical, the other bacteriologic. The former consists in the fact that cases which smell (and the odor is one of the most characteristic features of these cases) do well, while those which do not make no headway. The bacteriologic observation consists in the discovery that a certain bacillus is apparently constant in the wounds which emit the odor, while it is absent or cannot be recovered from those which do not smell. This bacillus is a spore-bearing anaerobe of a saphrophytic nature and belongs to the proteolytic group of organisms; the group which includes *B. tetani* and *B. edematis-maligni*. Unlike the latter, it appears to be nonpathogenic to the animals experimented on, and, what is of more importance, appears to be nonpathogenic for man when introduced into wounds. Further, it does not appear to set free any toxins injurious to the patient in the course of its action on the dead tissues. For convenience sake, the authors call it the "reading" bacillus. It acts, apparently, in virtue of its proteolytic powers only on devitalized tissue, and possibly on toxalbumins, and appears to possess no power of attacking healthy structures. Special stress is laid on the necessity of recognizing the fact that one of the chief factors which keep a wound septic is the presence of devitalized tissue in that wound. This acts as a base from which pathogenic organisms attack the body.

The surgical or excision treatment of wounds apparently recognizes this, but only aims at removing macroscopically devitalized tissues, and in doing so inflicts a fresh trauma liable to reinfection. For this Donaldson and Joyce propose to substitute the "reading" bacillus in a living form. The organism is probably present in the larger number of infected wounds, but requires more or less anaerobic conditions before it can come into play. These are provided by the pack method of treatment, but the authors are inclined to think that salt is not a necessary adjuvant and plays a very small rôle, if any. This seems indicated by the fact that an inert substance like sphagnum moss for packing gives equally good results. It is essential, however, that the wound be laid wide open in the first instance, exposing every pocket and sinus, so that the packing may completely fill the wound.

13. **Liquid Tight Closure in Wound Treatment.**—For the purpose of bringing fresh solution in contact with as large an extent of the wound cavity as possible, the authors created an ebb and flow in the wound by repeatedly filling it under pressure and allowing the fluid to escape. A catheter was inserted having a hole about its middle discharging in the center of the wound and its lower end tied off. The escape of fluid was obstructed by plugging the wound openings with gauze. Irrigation was regulated by a clip on the tube connecting the catheter with a reservoir. Distention of the wound occurred during the flow, followed by leakage and collapse of its walls when the flow was stopped, thus furthering the mixing of fluids in the wound much as the interchange of gases is promoted in the lungs by the act of breathing. In a sense the wound was made to breathe. This tidal movement in the wound is important. It is essentially a cleansing action. In wounds whose ramifications are many and tortuous this plan is particularly efficacious and has given excellent results. Closely associated with this washing of the wound is its ventilation. Exposing a deep wound to the air is of little avail unless air containing fluids are made to penetrate its depths. This is precisely what tidal flushing does. The technic of the procedure is described in detail.

14. **Radical Cure of Inguinal Hernia.**—In Slattery's opinion the importance of repairing the defect in the fascia transversalis in an operation for the radical cure of an oblique inguinal hernia has never been fully appreciated. Any operation which leaves a large or unsupported defect in the fascia transversalis or interferes with the support which the internal oblique muscle normally affords in the inguinal region must fail. Slattery frees the fascia transversalis thoroughly from the retroperitoneal fatty tissue both upward under the conjoined tendon and downward to expose the deep aspect of Poupart's ligament. The fleshy arch of the internal oblique muscle is retracted and forceps applied to the glistening fascia on the deep aspect of the conjoined tendon so as to draw it into the wound. This fascia brings with it the lower aponeurotic portion of the transversalis muscle. Mattress sutures (three or four generally suffice) are used to approximate this fused fascia and aponeurosis to the deep aspect of Poupart's ligament. It is important that the remains of the fascia transversalis still adherent to Poupart's ligament and the cord should not intervene between the structures opposed.

21. **Subtertian Cerebral Malaria Treated with Quinin and Galyl.**—In six cases cited by Falconer and Anderson galyl was used in association with large doses of quinin. That galyl alone can cause the disappearance of the ring forms of parasite from the peripheral blood stream is shown by two cases cited. The first six cases reported were all seriously ill with definite subtertian cerebral malaria. All the patients recovered, with the exception of one patient who died of a complicating croupous pneumonia. All had received quinin, several of them large doses by the mouth, intramuscularly, and intravenously, without clinical improvement. In all of them, with the exception of the fatal case, the clinical improvement after the administration of galyl was striking and immediate. In none of the cases did the injection produce any unpleasant results, although several of the patients appeared almost moribund before the injection. In one case in which it was considered inadvisable to give quinin, galyl alone caused the disappearance of the parasite from the peripheral blood and produced a striking improvement in the condition of the patient. In another case the patient took quinin in any form with great difficulty, and although she had taken a con-

siderable amount of quinin by the mouth and intramuscularly, ring forms of the subtertian parasite were constantly present in the blood. After the first half dose of galyl there was a notable clinical improvement, but the parasite could still be demonstrated in the blood. After the second dose the parasites at once disappeared from the blood. The disease ran a protracted course, and she developed a periostitis of the left humerus, but in spite of repeated examinations parasites were not again demonstrated in the blood during the rest of her stay in the hospital. The authors conclude that while the results of the combined galyl and quinin treatment have been encouraging enough to justify a further trial, the addition of galyl in no way diminishes the necessity for quinin. In cases in which on account of idiosyncrasy, quinin is impossible a valuable substitute may be found in galyl.

23. **Germicidal Power of Flavine.**—From Hewlett's experiments the germicidal value of flavine comes out very much lower than that stated by Browning and his co-workers. The result with pus is particularly poor and many disinfectants equal or surpass flavine and have the advantage of a much more rapid action.

Archives des Maladies de l'Appareil Digestif, etc., Paris

June, IX, No. 9, pp. 229-296

27 *Albert Mathieu. Editorial.—p. 229.
28 **Congenital Megacolon and Megarectum.* L. Bard.—p. 233.
29 *Exploratory Laparotomy with Advanced Cancer of the Stomach. Le Noir and Gardin.—p. 248.
30 *Fermented Whey in *Treatment of Certain Forms of Dyspepsia.* G. Moruzzi.—p. 254.
31 *Stool Signs of Insufficiency of the Stomach. R. Goiffon.—p. 262.
32 *Jejunal* Ulcer after Gastro-Enterostomy. Urrutia.—p. 272.
33 Pathologic Reactions of the Colon—Colonic Crises—and Pancreas Organotherapy. E. Savini.—p. 276.

27. **Mathieu and the Archives.**—The sudden death of Albert Mathieu is not to interfere with the publication of this monthly he founded nine years ago for records of research on diseases of the digestive apparatus and of nutrition. It is to be carried on by his former assistants, J. C. Roux, the internist, and P. Daval, the surgeon. It was one of Mathieu's principles to insist on the close and continuous collaboration between the internist and the surgeon in this line of work. The numerous cases of severe and rebellious enteritis in soldiers in his service during the war threw more light on gastro-intestinal pathology, and he had just finished the revision of the third edition of his textbook with this title when death surpised him.

28. **Idiopathic Dilatation of the Rectum.**—Congenital dilatation of the bladder, colon, and rectum has been a special field of Bard's research. He here describes cases of megarectum in which there was abnormal frequency of bowel movements. In one case, in a man of 48, previously published, the rectum filled the entire small pelvis, extending up to the diaphragm. Except for a tendency to constipation, there had been *no* trouble from this megarectum which was a necropsy surprise, the nature of the tumor not being suspected. In a recent case the diagnosis was made in the clinic. The man of 45 had had for years six or seven daily soft stools. When he had to defecate twice *in* the night, he called it an attack of diarrhea, *but no* medication modified it and there were *no symptoms* outside of the abnormally frequent soft stools. The rectum was much dilated but not so much as in the first case in which constipation dominated the clinical picture. In two other cases of megarectum with the diarrheic tendency there was also megacolon, so that diarrhea with megacolon should not be ascribed to colitis until megarectum has been excluded. In fact, the diarrhea from the megarectum *may* mask the constipation from the megacolon. This may lead to serious mistakes in diagnosis, as in still another case he describes in which various tedious courses of treatment had been futilely applied by different specialists to cure the assumed chronic colitis. This patient was a man of 60, member of a foreign embassy, not at all neuropathic and in good general condition but annoyed at having four or five passages of the bowels during the night, with two *during* the day. Roentgenoscopy showed the rectum abnormally dilated and long and the colon also. In these cases of megarectum, medication to cure the diarrhea had no effect as it did not remove the cause, but great benefit followed lavage of the rectum, rinsing it clean and thus putting an end to the incomplete spontaneous evacuation which was the cause of the frequent defecation. With megabladder, in the same way, there is only fragmented evacuation at a time, and hence the *pollakiuria* with megabladder is exactly analogous to the *pollakicoprosis* with megarectum.

29. **Exploratory Laparotomy with Advanced Cancer of the Stomach.**—Lenoir and Gardin report a case of advanced gastric cancer in which an exploratory laparotomy improved conditions materially. The patient was a woman of 54 who had had for six years symptoms suggesting hyperchlorhydria. Then during the following year, the vomiting and hematemesis became more frequent with other symptoms suggesting malignant disease, including atrocious pains and loss of weight. At an exploratory laparotomy the neoplasm was found too extensive for removal and the abdomen was closed, but prompt and material improvement followed. The pains in the stomach region disappeared for weeks at a time and the appetite returned, the patient gaining nearly 30 pounds. Secretory conditions improved to a remarkable extent, and the general benefit was so great that the diagnosis of cancer was doubted for six months, but then the symptoms returned. The woman lived eleven months after the operation. More than this could not have been anticipated from a more radical operation. Mathieu reported a similar case in 1895; he attributed the benefit to the effect of the operation on the mind. The pains abolished by an exploratory laparotomy, he thinks, must have been of central origin. A number of similar cases are cited, with from two to eighteen months' survival. The effect of the exploratory laparotomy is probably analogous to the influence of a laparotomy on tuberculous peritonitis.

30. **Unfermentable Diet.**—Moruzzi's publication on the advantages of peptonized and fermented whey in treatment of dyspepsia with acid or alkaline fermentations, in adults, was summarized in these columns, July 7, 1917, p. 75.

31. **The Stools with Gastric Insufficiency.**—Goiffon reviews in detail the coprologic signs revealing defective functioning on the part of the stomach. He thinks this is more common than generally believed, and that it may be responsible for both gastric and intestinal troubles. When the stools look brown or black on the surface and a brighter color inside, this, he says, indicates rapid oxidation of the bile pigments, and testifies to intense albuminoid putrefaction. The stools with gastric insufficiency are also liable to contain bunches or filaments of connective tissue and small scraps of potato, and the microscope shows muscle fibers. Treatment is with hydrochloric acid, and it has to be given in doses of from 1.5 to 3 gm. a day. Mathieu used to prescribe it: 20 gm. hydrochloric acid in 180 gm. distilled water. From one to three teaspoonfuls is added to a glass of sweetened water into which the white of an egg has been stirred. This glassful is to be sipped during the meal. The hydrochloric acid even in this amount does not replace the missing gastric juices, but it is enough to start the normal play of the reflexes, so that the motor functioning is restored to normal.

Bulletin de l'Académie de Médecine, Paris

September 4, LXXVIII, No. 34, pp. 163-194

34 Discussion *on* the Declining Birth Rate. Pinard and others.—p. 165. Continuation.
35 *Repression of Criminal Abortions. Berthélemy.—p. 190.
36 *Sodium *Arseniate* in Treatment of Soft Chancre and Chancroid. Goubeau.—p. 192.

September 11, No. 35, pp. 195-225

37 *Shield Worn to Protect Chest and Abdomen. E. Delorme.—p. 206.
38 *The Declining Birth Rate. E. Maurel.—p. 213.
39 The Rôle of the Flying Surgical Hospital. Doisy and Marcille.—p. 219.

35. **Criminal Abortions.**—This article is by a professor in the university law department. He discusses the legal measures that should be adopted to arrest the increasing *number* of criminal abortions, arguing that criminal *abortion* should be classed with espionage, counterfeiting *money*, anarchy, etc., as the crime against society is more important than the indi-

vidual character of the crime, and the informer should be guaranteed an absolute pardon. "Is the defense of the race," he asks, "of lesser importance than the defense of the money supply?" The birth-control propaganda should be suppressed, as the arguments in favor of birth control apply also to voluntary abortion. Criminal abortion cases should not be given a jury trial, as the jurymen do not realize the social danger of the crime, and they yield to intimidation by the abortionists, usually powerful and always with a protecting backing. Another point which he emphasizes is that a physician cited in a suit for criminal abortion should be relieved of the ban of professional secrecy, so that his testimony can be used against the abortionists "toward whom there can be no professional obligation." The action of the police should be reenforced by granting to medical syndicates, to the services pecuniarily interested, and to associations for increasing the population and to morality propaganda associations, the right to bring suit. Isolated, none of these measures is very effectual, but all together, with penalizing the convicted abortionists, would certainly reduce the number of such cases. The fear of punishment has always been one of the determining causes of virtue. In conclusion, Berthélemy stated that he had submitted this article to various medical and legal authorities, including the Assistance Publique and the Society of Legal Medicine, and obtained their endorsement.

36. **Sodium Arsenate in Treatment of Soft Chancres.**—Goubeau states that he and three other army physicians for a year and a half have been applying in treatment of soft chancre and chancrellous bubo, sodium arsenate in a 2 per cent. alcohol (95 per cent.) suspension. They paint the soft chancre with this daily, and if there is a complicating bubo they inject into it 1 or 2 c.c. of a 1 per cent. aqueous solution of the sodium arsenate, repeating on alternate days. Thanks to this method, the average course of treatment was shortened to nineteen days in 149 cases of chancre without bubo, the cure being complete in from four to ten days in the early cases. The most instructive case was that of a negro from Africa who had had vast soft chancres for over six months, rebellious to arsenobenzol and mercury. Five applications of the sodium arsenate suspension transformed the angry lesions and repair proceeded rapidly with a complete cure in a month.

37. **Shield for Chest and Abdomen.**—Delorme pleads that as the steel helmet has proved so useful in protecting against and attenuating skull wounds, a similar steel guard should be worn to protect the chest and abdomen. He exhibited a model breast plate for the purpose, and urged the adoption of something of the kind. His model is made in two overlapping parts.

38. **The Declining Birth Rate.**—Maurel suggests among other measures to arrest the decline of the birth rate, that pensions should be paid to families in proportion for each child until it becomes self-supporting, and that the parents in their old age should be given a pension proportionate to the number of children they have raised.

Lyon Médical

September, CXXVI, No. 9, pp. 397-444

40 *Acute Typhoid Meningitis. S. Bonnamour and A. Macrygenis.—p. 397.
41 Camphorated Alcohol in Treatment of Extensive Industrial Wounds; Three Cases. Briau.—p. 404.
42 *Mammitis in Soldiers with Malaria. C. Garin and Coullard-Descos.—p. 410.

40. **Typhoid Meningitis.**—The young woman had a typical typhoid fever except for intense headache, and typhoid bacilli were found in the lumbar puncture fluid. Bonnamour remarks that he knows of only seventeen authentic cases of purulent typhoid meningitis with bacilli in the spinal fluid, and one with paratyphoid bacilli.

42. **Mammitis in Soldiers with Malaria.**—Garin found mammitis in five of 800 soldiers under treatment for malaria, and five other cases have recently been reported by others. The mammitis caused no trouble for several months but as suppuration developed there was considerable pain. In two of the men the other mamma suppurated a month or two after the first. In one case there was secretion of actual colostrum during the course of the suppurating mammitis.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 8, XLVII, No. 36, pp. 1153-1184

43 *Anatomic Research on the Prevalence of Tuberculosis. A. Reinhart.—p. 1153.
44 *Treatment of Flatfoot. H. v. Salis.—p. 1162.
45 Fungus as Substitute for Cotton to Plug Culture Tubes. B. Galli-Valerio.—p. 1168.
46 Incandescent Electric Light for Improvised Superheated Air Apparatus. Debrunner.—p. 1168.

43. **Prevalence of Tuberculous Lesions in Cadavers.**—Reinhart writes from Berne where for eighteen months he made a special study of all the cadavers (460) at the Pathological Institute, seeking for evidences of tuberculosis. No traces of tuberculosis were found in the 28 newborn infant cadavers, but 29.16 per cent. of 72 children under 16 had manifest tuberculosis, in a progressive stage in all, although only 16.8 per cent. had died from tuberculosis. He cites statistics from other large cities showing from 10 to 42 per cent. with tuberculosis in the child cadavers, the numbers reported on varying from 88 to 848. Reinhart's material confirms the increasing prevalence as the children grow older, only 7.14 per cent. showing tuberculosis under one year. In the adult cadavers, tuberculosis lesions were found in 96.38 per cent. of the total 360. Only in thirteen cadavers was the search negative, and of these, nine were under 30. Other statistics show a range from Beitzke's 51.4 per cent. (Berlin), to Naegeli's 98 per cent. (Zurich). The tuberculosis mortality was highest between 30 and 40, rapidly declining after this age. In 63.9 per cent. of the adult cadavers the tuberculous lesions were in a clinically healed stage, the proportion of these cases increasing with each decade. He does not include small induration of the apex among the positive findings, but he was impressed with the frequent coincidence of these indurations with calcified foci in the bronchial glands on that side. This coincidence was marked in 122 of 230 cadavers. This percentage of 63.9 healed cases is the largest yet published, he thinks. The difference between town and country dwellers was slight, 93.9 per cent. of the 140 town people and 98.1 per cent. of the 211 country dwellers. The tuberculous mortality rate was slightly higher for the latter, 27.37, in comparison to 22.15 per cent., but the proportion of active progressive cases was only 7.5 per cent., in the country people to 14.9 per cent. in the towns. The data presented confirm the wide prevalence of tuberculosis, and that in most people it heals. The data show further that it is doubtful, to say the least, whether tuberculous infection occurs generally before the twentieth year.

44. **Flatfoot.**—Salis refers to what he calls *Spreizfuss*, a form in which the normal arch of the metatarsal bones sags, the curve being downward instead of upward. Insoles do not help this straddling of the bones, but great relief is obtained by a tight cuff worn over the front part of the foot back of the root of the toes. This cuff laces on top of the foot and laces further at the side at the broad end. By this means the arch of the metatarsal bones is forced up into place and held there, maintaining it in a dorsal convex instead of a plantar convex position. Before applying this corset-stuff cuff, he softens the skin of the foot, getting rid of callouses, and corrects the straddle foot with a plaster dressing. During this time the foot cannot be used much. In the milder cases this treatment corrects the trouble completely in a few months; in others the cuff has to be worn permanently. It slips easily on and off.

Annali d'Igiene, Rome

August, XXVII, No. 8, pp. 477-548

47 *The Reform in the Army Ration. F. Rho.—p. 477.
48 *The Army Ration in Italy. S. Baglioni.—p. 487.
49 *The Navy Ration. C. M. Belli.—p. 503.
50 The Morphology of the Hemorrhagic Jaundice Spirochete. D. C. Bianchi.—p. 510.

47. **The Army Ration in Italy.**—Rho says that when the war started every effort was made to give the soldiers the best food possible, and the ration was based on the Voit-Rubner

estimate of the calory needs. But time soon showed that what may be proper for a people of heavy eaters did not suit at all the Italian soldiers, coming from rural homes where meat is not on the every-day menu. Pessimistic sociologists have said that the Italian populace is inadequately nourished from a lack of nitrogenous substances in their diet, and they have cited this as an argument to demonstrate and explain the alleged inferiority of the Latin race. But Rho declares that southern Italy has furnished emigrant labor to the world that can stand comparison with any for the ability to stand fatigue, although bread, vegetables and cereals is the principal diet. Carbohydrates form the main articles of diet in rural populations nearly everywhere from the oatmeal of the Scotch to the potatoes of the Irish and the rice of Asia. Folena's experiments on himself (1912) showed that he could maintain his nitrogen balance with a nitrogen minimum of 28.9 gm. He asserts that it is possible to keep at the normal physical and mental level with a protein intake of only 0.6 gm. daily per kg. of body weight. Rho cites further Chittenden, Hindhede and others and the unfavorable experiences with the excessive meat ration given the Italian soldiers, all tending to show the necessity for reform in the soldiers' ration. A commission of military or militarized hygienists and physiologists was appointed to study the subject. Their report was accepted and acted on, with the saving of 30,000 head of cattle each month as only 60,000 had to be slaughtered instead of the 90,000 called for by the previous ration. The number of calories provided in the new ration does not surpass 3,000—except in winter and for the troops in the mountains—but even this is more than Chittenden regarded as necessary. All the reports from the army and navy are favorable for the new ration during the six months it has been in operation.

48. **The Soldiers' Ration in the Italian Army.**—Lieut.-Col. Baglioni comments on the great difference between conditions in this war and in previous wars when men lived in open camps. There is no longer the necessity for long marches and physical encounters and effort. The men crouch in shelters and get comparatively little exercise, while their nerves are being constantly on the strain. The ration possibly called for in other wars is not needed in this, and does actual harm. Another difference between this and previous wars is that the food cannot always be served directly when cooked, but has to be carried long distances to the men in the shelters. The food undergoes various changes during this transportation, in addition to its getting cold, so that it loses in palatibility. Among the first steps taken to improve on the former ration was the training of large numbers of men to serve as cooks for the special conditions of the present warfare. The meat ration was reduced from 375 to 250 gm. with optional fish or canned meat two days in the week, and 100 gm. cheese instead of meat on Fridays, with a corresponding increase in rice or pastes (macaroni, etc.). Provision was also made for cabbage and other vegetables, and 40 gm. of cheese every day. The ration includes also 15 gm. of lard or oil on the three beef days and 20 gm. on the four days of vegetables. Another form of condiment, he says, which is almost indispensable for Italians is the tomato, and provision is made for 15 gm. daily of the fresh or canned tomatoes, or the extract representing 30 per cent. of the dry residue. Variety is also ensured by 10 gm. of onions, garlic, etc.; pepper and spices, 0.5 gm.; salt 20 gm., and on the days when one meal consists of pastes, 10 gm. of grated cheese are allowed for it. For cooking soups and pottage, portable cookers have been found extremely convenient for the men on the firing line (*casse di cottura*), and they are being used more and more extensively in the civilian population. But they cannot be used for preparation of the concentrated tomato extract, boiling the onions, etc. On this account the military authorities and certain firms put up in cans a mixture of meat, vegetables and tomato juice. The inside of the can is varnished to protect the food against corrosion of the metal. The mixture of fats and proteins in the can is varied by different makers and at different times to avoid monotony. The ration of this is 25 gm. which gives a relish to the macaroni or rice served with it. By the change in the ration thus provided, beef cattle and grain are saved in large proportions while the cheese, tomatoes, potatoes, etc., are domestic products. Camp jaundice rapidly subsided on addition of vegetables to the diet of the men in the advanced posts, as also certain forms of scurvy and nephritis. In conclusion eight pages of tables are given showing the comparative food values. The expense of the total ration, including meat, bread, potatoes, vegetables, cheese, sugar and coffee, averages about 80 cents less per week than the old ration; it averages 2,794 calories to the former 3,013. It is expressly stated throughout the article that this ration applies only to the territorial troops, that is, those not at the front firing line.

49. **The Navy Ration.**—Belli gives the details for the navy, saying that the calories total 3,036. This includes 170 calories from the wine provided the men. Rho has proposed to credit the men not taking wine with the money it would cost, but the proposal met with administrative objections. The details of the navy ration are left in large measure to the discretion of the commanders of the vessels to permit variety.

Gazzetta degli Ospedali e delle Cliniche, Milan

September 9, XXXVIII, No. 72, pp. 977-991

51 *War Injuries of the Eyes. T. di Giuseppe.—p. 977.

51. **War Injuries of the Eyes.**—Di Giuseppe refers to the fact that wounds of the head are exceptionally numerous in this war, and the eyes are proportionately often injured. In the fighting among the mountains, the scraps of stone broken off and propelled by the explosions increase the danger for the eyes. Another danger to which the soldiers' eyes are exposed is from the trachoma and other eye affections of the men taken prisoners, and from such infections in the trenches just vacated by the enemy. The toxic gases which induce much lacrimation are far less dangerous for the eyes than the usual asphyxiating gases. The latter when they act on the eye long enough deprive the cornea of sensibility and it looks dull but otherwise seems normal for a time. If the injury is severe, small foci of necrosis then develop and, with atrocious pain in the brow, back of the neck and the temples, the eye slowly dies, the eyeball becoming completely atrophied. In his experience, 16 per cent. of the war injuries of the eyes were from machine guns or shrapnel, 50 per cent. from flying scraps of stone, 5 per cent. from trachoma, and 25 per cent. from asphyxiating gases.

Pediatria, Naples

September, XXV, No. 9, pp. 513-576

52 *The Sugar Content of the Blood at Birth. S. Cannata.—p. 513.
53 *Transient Paralysis of the Arm, with Pain, in Young Children. V. Conterno.—p. 517.
54 *The Value of Bacteriolytic Antibodies in the Cure of Typhoid. A. Zironi.—p. 527.
55 Vaccine Therapy in Acute Infectious Disturbances in Infants and Young Children. P. Ceppellini.—p. 533. To be continued.

52. **The Sugar Content of the Blood at Birth.**—Cannata determined the sugar content of the blood in fourteen newly born infants and in eight from 2 to 5 days old. The method applied was the Lewis-Benedict-Bass technic. The findings ranged from 0.074 per cent. in the first group to a maximum of 0.92 per cent. in the others, fasting, and a maximum of 0.114 two hours after feeding.

53. **Transient Painful Paralysis of the Arm in Young Children.**—Conterno comments on the neglect by the text books of this common trouble in young children. In Broca's compilation of 208 cases, half were one to 3 years old and the others up to 5 years, but girls were affected twice as often as boys. The usual cause is that the child stumbles as it is walking with an older person holding its hand, and the arm is jerked as the adult seeks to keep it from falling. The symptoms are those of a subluxation of the head of the radius, and all trouble vanishes with reduction of the luxation, as a rule. In a few cases, however, merely distracting the child's attention answered the purpose. The child was held close in its mother's arms, the sound arm held against her so that the child was unable to use it while the paralyzed arm was left free, near a tempting toy. The mother and

physician pay no attention to the child, and it soon reaches out its one available hand to seize the toy, and the paralysis is conquered. When this fails, he proceeds to reduction of the subluxation. The trouble is a painful but benign traumatic injury of the head of the radius or memory of such.

54. **Bactericidal Properties of Typhoid Serum.**—Zironi tabulates the findings in about twenty-five cases to demonstrate that the serum in typhoid and paratyphoid has marked bactericidal power for bacilli of both the typhoid and the two paratyphoid groups. This power is marked in vitro in a 1:10 dilution, but is still evident even at 1:50, even when the serum is obtained while the bacilli are still circulating in the blood. He theorizes to explain this paradox, suggesting that bacilli in artificial cultures are frailer than those in the body.

Rivista di Clinica Pediatrica, Florence

September, XV, No. 9, pp. 449-504

56 *The Avoidable Infant Mortality in Italy. G. B. Allaria.—p. 449.
57 *The Urine Reaction in Infants. M. Flamini.—p. 462.
58 *School Anemia. C. Bracci.—p. 469.

56. **Avoidable Infant Mortality.**—Allaria commences this study of the sanitary prophylaxis for early childhood with a description of Mercuriale's "De Morbis puerorum." It was published at the most brilliant period of the Renaissance, the days of da Vinci and Michelangelo, but the writer had to devote the preliminary chapter to an excuse and justification for his temerity in suggesting that children should be given medical attention and care as well as adults. As late as 1905, G. Mya published a scathing arraignment of society for its disregard of the high infant death rate in Italy. Allaria gives statistics in regard to the infant birth and death rates in various European countries, and proposes various measures for infant welfare work.

57. **The Reaction of Infants' Urine.**—Flamini tabulates the metabolic findings in fifteen breast fed and fifteen bottle fed infants, with the urine reaction and the aspect of the stools. Also of a number of the bottle fed being given calcium lactate. In the bottle fed infants and in the breast fed with bowel trouble, the urine was always strongly acid; the acid phosphates content was always large. In the healthy breast fed the acidity of the urine ranged from 0.1 to 0.6, but in the artificially fed the range was from 1.25 to 4 in the healthy, with two exceptions in which it was 0.6. In some of the bottle fed with bowel trouble it reached 4.5 and 5.8. The phosphate content was much higher in the bottle fed. The bottle fed given calcium lactate showed marked reduction of the acidity afterward, the acidity dropping from 2 to 1.3; from 3.5 to 0.9, or from 4 to 1.4. The infants took without disturbance up to 0.5 gm. of the calcium lactate at each feeding, and Flamini thinks that it might be useful to give calcium lactate as a routine measure to bottle fed babies to enable them to tolerate and utilize better the artificial food.

58. **School Anemia.**—Bracci calls this "scholastic anergy," as anemia is not constant and is usually secondary to the changes induced in the metabolism by the lack of energy. The chief change in the blood is the reduction of the amounts of the two basophile substances of the red corpuscles. The whole trouble is probably some upset in the balance of the glands with an internal secretion. Iron does not act as well as usual in anemia. Arsenic gives better results in these cases, and phosphorus is also useful, and their combination.

Prensa Medica Argentina, Buenos Aires

August 30, IV, No. 9, pp. 105-116

59 Angioma with Cavities in the Tendon of the External Oblique Muscle. R. A. Marotta and A. F. Landivar.—p. 107.
60 *Normal Beef Serum in Treatment of Human Anthrax. III, J. Penna, J. B. Cuenca and R. Kraus.—p. 108. Continuation.
61 Error from Derived Electric Currents in Experimental Research on Frogs with Curare. J. Guglielmetti.—p. 110.

60. **Normal Beef Serum in Treatment of Anthrax.**—In this instalment of their third communication on this subject, Kraus and Penna give illustrated descriptions of five typical cases from their later series. The first instalment was summarized in these columns recently, page 1388. There was also editorial comment, page 1350.

Semana Medica, Buenos Aires

July 19, XXIV, No. 29, pp. 57-84

62 *Surgical Treatment of Ankylosis. E. M. Olivieri.—p. 57.
63 *Nationalization of the Asistencia Publica. L. J. Facio.—p. 68.
64 *Minor Technical Points in Laboratory Differential Diagnosis. M. Beatti.—p. 69.
65 Oysters. P. Brocca.—p. 72.

62. **Operative Treatment of Ankylosis.**—In this part of Olivieri's study of this subject, he reviews the history, and describes four cases in which he restored the functional use of the elbow by resection. He warns that we must not hesitate to resect widely in these cases, from 5 to 8 cm. of bone as may be needed, especially in the tuberculous cases. Vallas has shown that a kind of new joint may form after simple resection. He had occasion to compare the block of bone cut out at the resection with the necropsy findings in the elbow several years later. The epicondyle and epitrochlea had grown again, and the muscles had regenerated with their points of attachment while the articulating ends of the bones had become covered with a compact tissue resembling cartilage; the capsule had reformed completely, and the synovialis was represented by a series of serous cavities which probably in time would have fused into a single cavity. The resulting nearthrosis was an excellent example of what can be accomplished in the elbow by resection alone. But good results are obtained more promptly and more constantly by opening up the joint, resecting conservatively, and interposing a pad of tissue. This, he declares, is the greatest progress realized to date in the treatment of ankylosis.

63. **The Nationalization of the Asistencia Publica.**—In Paris and Buenos Aires the entire system of hospitals, asylums, municipal lodging houses and other agencies for caring for the sick poor and helpless are under one management, called the Public Assistance. It has been found to work so well, by preventing duplication of effort and gaining the advantages of organization, that E. R. Coni, the leading hygienist of Argentina recently proposed a plan to unify in the same way the public hospitals and asylums throughout the whole country on the same single management system. Facio here endorses the project most enthusiastically, and enumerates a number of additional advantages beyond those to which Coni called attention. The plan is to have the national public health system quite distinct, as at present. This department is for prophylaxis of sickness; the Asistencia Publica is for care of the sick. With a nationalized Asistencia Publica it will be possible to have accessible hospitals and asylums available for each region. One point on which Coni insisted especially was that the national leper asylum should not be placed on a comparatively inaccessible island, as at present planned. If the separation from home has to be absolute, families will not disclose the presence of leprosy. It is much better to induce them to disclose it early by having the leprosorium within a reachable distance and visiting permitted under restrictions.

Siglo Medico, Madrid

August 18, LXIV, No. 3323, pp. 605-624

66 *Roentgenography with Kidney Stones. A. P. Martin.—p. 606.
67 Treatment of Lichen Planus. E. de Oyarzabal.—p. 609.
68 Simple Melancholia. A. S. Herrero.—p. 610.

August 25, No. 3324, pp. 625-644

69 Visit to the Crocker Cancer Institute at New York. C. Fernandez-Arroyo.—p. 626.
70 Depilation. B. N. Canovas.—p. 628.
71 *Still Unsolved Problems in Regard to Leprosy. R. Kraus.—p. 631. Commenced in No. 3323, p. 612.
72 Present Status of Our Knowledge of Puerperal Infections. D. S. Recasens.—p. 640. Commenced in No. 3323, p. 618.

66. **Kidney Calculi and Radiography.**—Martin reports a few cases to show the danger of relying too implicitly on the roentgen findings when they fail to disclose anything suggesting calculi although the clinical picture indicates something of the kind. Imperfections in the photographic plate may simulate calculi, or gravel may clump and simulate a solid stone. In one such case the pyelotomy revealed only one minute grain which he extracted. The fifth day after the operation a large number of other grains were voided in the urine. The pyelotomy had thus been entirely superfluous as

the "sand" would have been washed out in time, while the fact that the other grains were not found at the pyelotomy shows the inadequacy of opening the pelvis alone for exploring the kidney. Roentgenography showed 4 grains still left in the kidney, and three were still there when examined several months later. Martin then had the young man drink copiously of diuretic beverages and exercise vigorously, jumping, walking on his hands and other gymnastic exercises. This dislodged the minute stones and one by one they were expelled, clearing the urinary apparatus of all suspicious appearances. In a third case, pain and hematuria returned after removal of a calculus by nephrotomy, and a second operation was done. The nerve was then released from cicatricial adhesions and also the kidney. Two hardened glands were found close to the renal pelvis, explaining the roentgen shadows at this point. This second operation put an end to all disturbances.

71. **Leprosy.**—Kraus thinks that there probably is more than one germ responsible for leprosy, as for dysentery. The findings with experimental research have been conflicting, he says. In fact, none of the cultures isolated to date can be regarded as the true culture of leprosy. To date also no specific allergic reactions have been conclusively demonstrated in leprosy. It is possible, however, that the tuberculin tests or something of the kind in the incipient stages might prove positive, and etiologic vaccination give successful results. He adds that Stefanski's discovery of lepra in rats may have something to do with its transmission. Fernandez' research in Argentina has demonstrated the existence of lepra in rats. Kraus cites the experiences in Norway in regard to isolation of the leper in his own house, avoiding all contact with the healthy, as having given the most satisfactory results. The reduction in the number of cases has been so marked that this example can be followed with confidence in other countries. In South America, on the other hand, leprosy has spread widely in recent years as there has been no systematic prophylaxis against it. He urges concerted national and international action in prophylaxis of leprosy, especially in South America.

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September 10, II, No. 1, pp. 1-113, German Edition

73 *Primary Diseases of Lymphatic Apparatus. H. Nakamura.—p. 1.
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lands laws. The term "practitioners of medicine" (*beoefenaren der geneeskunst*) should not be applied to the quacks who are responsible for the agitation. The medical committee has an interesting field for research before it, he continues. This committee includes a physiologist, a pharmacologist, four neurologists, one internist, one ophthalmologist and an obstetrician, but there is no venereologist and no ear man, although these are the chosen fields of the quacks. He comments on the vast field for their research, remarking in conclusion that the physicians of the Netherlands anticipate their report with much interest and concern.

79. **Anthrax Bacillus Meningitis.**—At the necropsy of the young soldier who had succumbed to fulminating hemorrhagic meningitis, the anthrax bacillus was found in the meninges and spinal fluid and in internal organs. He had helped to slaughter a cow with anthrax not long before. The intense cyanosis, early unconsciousness and speedy death were special features of the case. The first symptoms, pain in right arm and shoulder were noticed ten days after the slaughtering of the cow, and a pustule on the arm and the meningeal symptoms developed the fourteenth, with death the fifteenth day.

Hospitalstidende, Copenhagen

August 15, LX, No. 33, pp. 789-812

80 *Appendicitis and Oxyuriasis. S. Matthiasson.—p. 789.

80. **Helminths and Appendicitis.**—Matthiasson states that he found a living oxyuris in the appendix in three adult women. In each case the appendicitis had been mild and restricted to the interior of the appendix, and all had complained of boring pains in the right iliac fossa for several weeks or months after the first acute attack. The long persistence of these pains, with the comparatively slight pathologic changes in the appendix, impressed him as possibly to be ascribed to the helminths. He cites certain authorities to show that helminths are capable of serving as a possible factor in the development of appendicitis. This might explain the occurrence of appendicitis in several members of one family. In looking over the literature he has been astonished to see that surgeons pay so little heed to the oxyuris as a factor in recurrence of appendicitis. He urges collection of statistics in regard to the prevalence of the oxyuris in cases of appendicitis, and especially in recurrences, and whether expulsion of the helminths aids in warding off recurrence, adding that possibly the oxyuris seeks refuge in the appendix during treatment for worms and thus escapes the action of the drug. He has found naphthalin more effectual than santonin in expelling the oxyuris.

Hygiea, Stockholm

August 16, LXXIX, No. 15, pp. 737-800

81 *Cholesterol in Pleural Effusion. P. Arnell.—p. 737.
82 *Esophageal Diverticulum plus Dilatation. J. Leffler.—p. 748.

81. **Cholesterol in Pleural Effusion.**—Arnell found cholesterol crystals numerous in the effusion in the right pleura in a man of 25 with minor signs of pulmonary tuberculosis. The pleurisy had a chronic tendency but, notwithstanding the persistence and recurrence of the effusion through six years, the general health kept good and the cholesterol crystals did not seem to cause much subjective symptoms. The crystals glistened in the effusion, as there was up to 0.41 per cent. cholesterol. The albumin content reached 5.23 per cent. The fluid was sterile. The effusion had developed first after a spontaneous pneumothorax and the effusion had evidently been encapsulated by the pleura.

82. **Esophageal Diverticulum.**—In the case described by Leffler, a woman of 34 had extreme idiopathic dilatation of the esophagus and at the same time a pulsion diverticulum on a level with the junction of the second rib with the sternum. Recurring bronchitis with lassitud [illegible] ested [illegible]
monary tuberculosis, and the esophageal [illegible]
casual discovery on roentgenoscopy, as [illegible]
the stenosis had improved so much duri [illegible]
had been disregarded. The large [illegible]
percussion findings simulating those of [illegible]
but there was no reaction to tuberculin.

Norsk Magazin for Lægevidenskaben, Christiania

September, LXXVIII, No. 9, pp. 1017-1128 and Supplement

83 *Surgical Treatment of Wandering Kidney. C. Johannessen.—p. 1017.
84 *Nodular Arteritis. (Periarteritis nodosa.) F. Harbitz.—p. 1051.
85 *Management of Post-Partum Hemorrhage. (Om ledelse av efterbyrdstiden.) K. Brandt.—p. 1079.
86 *The Physiology of Endogenous Uric Acid. H. F. Høst. Supplement.

83. **Wandering Kidney.**—Johannessen discusses the various drawbacks of the different technics in vogue for operative correction of wandering kidney. He regards Rovsing's latest method as superior to all others. Rovsing has reported 85 per cent. cured and 9.3 per cent. improved in 107 cases without complications and a corresponding 50 and 25 per cent. in 64 cases with complications. Johannessen applied his technic in 11 cases, all in women, and all involving the right kidney. In 5 the kidney had become displaced after a childbirth. Of the 7 uncomplicated cases, 6 were cured and the seventh materially improved. Of the 4 with gastroptosis or other complications, all were improved and 2 quite cured. His experience confirmed Rovsing's statements as to the influence of wandering kidney on menstruation. He has repeatedly found that a bandage to support the wandering kidney put an end to dysmenorrhea. Kümmel has reported a case in which, to relieve the pains, both ovaries and finally the uterus were removed, but the pains persisted until the sagging kidney was restored to place. It is important to give some drug to maintain peristalsis after the operation, as otherwise symptoms suggesting ileus may develop. The kidney should always be examined for calculi, cysts and a neoplasm before fastening it in place, and the ureter tested.

84. **Periarteritis Nodosa.**—Harbitz reports the full details with necropsy of a typical case of this affection, saying that he knows to date of only thirty-five cases on record. The intima and media of the medium and smaller arteries were affected with a chronic proliferation of connective tissue and hyalin, associated with regions of acute involvement of the adventitia. In one of the illustrations the finer arteries on the heart look as if strung with beads. The findings in his case suggest polyarteritis as a more correct designation than periarteritis. The onset is generally acute, in the midst of health in the prime of life, although cases have been known in children and the elderly. It begins with fever, not high but irregular, and pains in the muscles and legs, sometimes in the joints. Then there is fleeting edema at various points, especially in the face. The diagnosis wavers between polyneuritis, polymyositis and trichinosis. His patient was a man of 22 and polyneuritis was the clinical diagnosis. Lassitude and weakness became extreme, the pulse small, irregular and fast at times, modified more than corresponded to the fever. The pains increased and symptoms developed on the part of the kidneys, intestinal tract and heart, and death occurred within the usual period of from two to four weeks. This is the nerve or muscle type of nodular arteritis. In the intestinal type, vomiting, diarrhea and collapse phenomena dominate the clinical picture, suggesting peritonitis. The necropsy findings showing the changes and obstruction in the arteries, and the resulting softening and necrosis readily explain the clinical picture. In some cases the main disturbances are in the kidneys from the start, entailing early fatal uremia. The brain and respiratory apparatus have been mostly spared in the cases to date. The nodular arteries may be restricted to a single organ and the nodules may retrogress; Harbitz has seen findings in cadavers and in animals which prove this. He has found gray nodules along the arteries in the spleen in elderly cadavers, which probably were [illegible] of nc [illegible] teritis. An infectious origin seems
[illegible] no [illegible] bacteriologic findings have been
r [illegible] a [illegible] suggesting syphilis.

[illegible] rha [illegible] randt [illegible] nvinced that
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[illegible] embranes or
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[illegible] in its expul-
[illegible] arily when it
[illegible] removes them

the "sand" would have been washed out in time, while the fact that the other grains were not found at the pyelotomy shows the inadequacy of opening the pelvis *alone* for exploring the kidney. Roentgenography showed 4 grains still left in the kidney, and three were still there when examined several months later. Martin then had the young man drink copiously of diuretic beverages and exercise vigorously, jumping, walking on his hands and other gymnastic exercises. This dislodged the minute stones and one by one they were expelled, clearing the urinary apparatus of all suspicious appearances. In a third case, pain and hematuria returned after removal of a calculus by nephrotomy, and a second operation was done. The nerve was then released from cicatricial adhesions and also the kidney. Two hardened glands were found close to the renal pelvis, explaining the roentgen shadows at this point. This second operation put an end to all disturbances.

71. **Leprosy.**—Kraus thinks that there probably is more than one germ responsible for leprosy, as for dysentery. The findings with experimental research have been conflicting, he says. In fact, none of the cultures isolated to date can be regarded as the true culture of leprosy. To date also no specific allergic reactions have been conclusively demonstrated in leprosy. It is possible, however, that the tuberculin tests or something of the kind in the incipient stages might prove positive, and etiologic vaccination give successful results. He adds that Stefanski's discovery of lepra in rats may have something to do with its transmission. Fernandez' research in Argentina has demonstrated the existence of lepra in rats. Kraus cites the experiences in Norway in regard to isolation of the leper in his own house, avoiding all contact with the healthy, as having given the most satisfactory results. The reduction in the number of cases has been so marked that this example can be followed with confidence in other countries. In South America, on the other hand, leprosy has spread widely in recent years as there has been no systematic prophylaxis against it. He urges concerted national and international action in prophylaxis of leprosy, especially in South America.

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THE DIET OF PRISONERS OF WAR IN GERMANY

ALONZO ENGLEBERT TAYLOR, M.D.

PHILADELPHIA

American soldiers are in France, others are going, and many more will have to go, unless some unfore-seen turn in military, industrial, economic or political ffairs brings the war to an early conclusion. Barring xtreme crop failure, starvation will not intervene in iermany; of revolution in war-time no one has any ope who knows the German mind from first hand servation. Since we have soldiers on the western ont, American boys will inevitably be taken prisoners d interned in prison camps. For us the facts of the nagement of the German prison-of-war camps will, refore, hold a personal and urgent meaning. We e, indeed, over one hundred Americans interned in nany, being fed by our Red Cross. There has much written of the prison-of-war camps in Ger- Much has been distorted and exaggerated; as also been concealed. In the broad sense, one ental fact holds for the prison of war as well e prison of peace; prison life depends more haracter of the management than on prison bility of management will make prison life tate with the worst of laws relating to the tions; brutality will make a hell of prison best of laws. Of this we have illustra- ountry; a prison hell and a prison haven in the same city. But, the prisoner-of- something more than this. The pris- not confined for reason of personal s he the object of reformation. The a military fact; he represents a itary forces of his country. He is ce he is potentially and actually a of the enemy. He is a political ed in terms of di omatic units. tunately, a w of offense es, since he e ttainment ner o

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(*c*) The fact that, through the blockade, Germany could not secure manufactured commodities from the neutral world gave her extraordinary rights over the labor of the prisoners of war.

(*d*) The rules of discipline and control applying to her soldiers under her military law applied to prisoners of war under military rule.

(*e*) Distinctions between prisoners of war of different nationalities were not recognized; "the Allies who fight together must as prisoners of war sleep together, eat together and work together."

The period of unorganization lasted until the close of the autumn campaign of 1914. On the west front, management of prison-of-war camps was regarded by the Germans as well organized in 1915. On the east front, however, the organization broke down under the weight of the huge number of Slavs captured in the late summer of 1915. According to the Germans, the organization was everywhere maintained during the year of 1916. During the present summer the number of prisoners taken by the Germans has been so low that the problem of caring for them cannot have been onerous.

The Germans were taken by surprise at the number of prisoners taken during the fall of 1914. As one officer remarked to the writer, with what he doubtless regarded as fine sarcasm, they were "surprised that the Allies had so many troops to surrender and that they surrendered so readily." Confident that the Imperial Army would march directly to Paris, no particular provision for the care of prisoners of war was contained in the campaign plans of the General Staff. For each new batch of prisoners, it was almost literally true that they had no beds on which to sleep, no roofs over their heads, and no food to eat. Usually this state of unorganization lasted only a few days; but sometimes the quarters, living accommodations and food were almost intolerable for several months. Some prisoners have stated to the writer that they regarded the neglect at that time as purely unintentional due to unorganization; others have the conviction, born of experiences that to them permit of but ne interpretation, that malice more than unorganiza- n contributed to the wretchedness of their situation. e writer regrets to feel compelled, from personal rvations, to conclude that in some camps and under commandants, malice *was a factor* in the regimen. one considers the number of camps (150 parent and thousands of working camps) it is obvious chances of getting a brute for a commandant er were *not few*. In theory, the prisoner of

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In a historical review of the provisioning of the prisoner of war in Germany, three periods must be defined: the period of unorganization, the period of organization and the period of stringency. Throughout, one must bear in mind the five accepted principles of management of prisoners of war in Germany:

(*a*) The possession of prisoners by Germany in greater numbers than those of her subjects in the hands of her enemies gave her a situation of vantage.

(*b*) The fact of a food blockade relieved her of legal responsibility for the subsistence of the prisoners of war.

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The writer had no personal experience with the prison-of-war camps in Germany prior to March, 1916. All statements of conditions prior to that date rests on the experiences and records of the American Embassy in Berlin, on official German publications, and on statements of German officials to the writer. The stringency in foodstuffs became acute after the arrival of the writer in Berlin; and the conditions of subsistence may be assumed to be about the same now as during the summer and autumn of 1916.

The story of later conditions is of more importance to us than a recital of earlier conditions, since we are most interested in what our fellow men may be expected to encounter and endure in the event of being captured on the western front. The fact that Germany has taken no official notice of the declaration of war by the United States, and has herself made no declaration of war against us, will not prevent the captured soldier from "getting his" if he should fall into the hands of a rancorous Prussian sergeant. The Prussian sergeant is a creature sui generis. Since the Franco-Prussian War, German newspapers have regularly contained accounts of the brutalities of the sergeants to the one-year recruits drilling under them. The one-year recruit was the man of university education. The drill sergeant sprang from the masses. During the single year of military service of the educated German, the uneducated sergeant had the only opportunity of his life to inflict personal indignities on the man of social station above him. German military regulations contained specific provisions designed to control the profanity and indecency of language employed by the sergeant against the recruits. German officers have stated to the writer that the strict military rules applying to the newly captured prisoners were not infrequently violated by the sergeant, in the same spirit in which he used to abuse recruits under his control. Good commandants often had difficulty in controlling the sergeants who were their subordinates; the combination of a harsh commandant and a malicious sergeant spelled suffering for the unfortunate man entrusted to their military care.

The subsistence of the prisoners of war during the first half of the first year was provided on the contract system. When one or five or ten thousand men were taken prisoners, they were sent back of the lines. Later they were sent inward, in accordance with a system of distribution that no German official was ever able, or willing, to make clear to one of us. The heads of the army corps had certain rights; the generals of the battling divisions to whom the captive had fallen had certain prerogatives; the needs of the particular sections of the fatherland for labor were taken into consideration, and the capacities of certain cities or sections to care for large bodies of prisoners were factors of moment. But when all was said and done, some of the prison-of-war camps seemed, like Topsy, to have "just growed up." Certainly, some of the camps were established in places that the present commandants cannot imagine would ever have been regarded as proper locations for a camp. When after a battle, the hundreds or thousands of prisoners arrived at the denominated place, possibly after only a few hours' notice by telegraph to the local authorities, it was up to the local authorities to provide shelter, beds and subsistence. The contract system was the most easy and feasible system, at first sight. Caterers took over the entire feeding of prisoners, at prices ranging from 15 to 16 cents per day. There were at first no regulations of diet officially promulgated; the commandants were supposed to see to it that a proper diet was provided. It was during these first months that the greatest complaints over subsistence arose. It was frankly admitted to the writer by German authorities that in many instances the caterers violated grossly the trust imposed in them by the government, made easy by the lack of inspection service. Indeed, in published protocols of later meetings of the war subsistence bureau, dissatisfaction of the authorities and scientists with the subsistence furnished by the caterers was freely expressed. But, openly, the Germans usually denied that more than nominal abuses existed; and when driven to the wall, would fall back on the "you're another" by describing the British as inventors of concentration camps during the Boer War. The caterers not only confessedly neglected the needs of the prisoners of war, but in some instances they also defrauded the government. The penalty, therefore, sometimes exacted, was to compel the contractor to continue his contract after the period had expired, until restitution was done. As prices were continually rising, to compel a caterer to continue at the old price meant loss to him and profit to the goverment. In many instances this was done until, in the judgment of the authorities, the improper profits had been leeched away. But the prisoner of war had no restitution. The writer has no personal information of the diet of the prisoners of war in Germany during the first year of the war. The records of the American Embassy in Berlin contained no investigations by trained observers. The German government did not maintain a competent department of inspections, and confessedly did not know for many camps exactly what was going on. But from statements made to the writer by men whose judgments, as revealed to the writer in camps with which the writer was acquainted, were fair and just, the food of the prisoner of war during the first year of the war was often badly prepared, entirely disregarded the tastes of the men, and was sometimes deficient in amount.

The first governmental regimen was issued in the spring of 1915, and was, in a certain sense, recognized by the Germans as an admission that the local camp authorities and the caterers had been more or less derelict. The first ration provided that the prisoners of war must receive daily 85 gm. (3 ounces) of protein, 40 gm. (1 4/10 ounces) of fat, and 475 gm. (17 ounces) of carbohydrate, with a total value of 2,700 calories. From the standpoint of quantities, this was an entirely adequate diet for sedentary men. When the prisoners worked, they received 10 per cent. more food. The cost was limited to 16 cents, thus compelling the materials to be chosen from among the few foodstuffs that would furnish the denominated units within the set price. Early in the summer of 1915, the housing and subsistence in the prison-of-war camps were organized, and on the customary basis of German minuteness. Under the commandant of the camp operated a committee composed of subsistence officer, surgeon and paymaster. The service of the surgeon was limited to an inspection of the raw materials and stores, and to a daily report on the taste of the mid-day soup. The subsistence officer had the running of the store rooms and kitchens. The paymaster made arrangements for purchase, though this was often purely mechanical, as the central war department made the chief purchases for the prison-of-war camps. The minister of war appointed a diet expert to exercise supervision over the ration. This was fixed each month for all of the camps, leeway being supposedly allowed to enable the subsistence committees in different camps to take advantage of local markets. If the camp commandant was an efficient man, this arrangement resulted in variety in the diet. (The writer once saw 3 tons of asparagus being cooked for prisoners-of-war.) More often the opportunity was neglected. In June, 1915, a course of instruction for subsistence officers was held in Berlin, under the direct authority of the minister of war. The course was attended by about one hundred officers detailed from the several camps; for a week they attended lectures and demonstrations on the physiology of the diet, the preparation of food and the technic of mass rationing. Germany had possessed considerable experience in civic kitchens; and on this experience the feeding of the prisoner of war was largely founded.

As the expert of the Prison Nutrition Office there was selected, not one of Germany's many recognized workers in nutrition, as might have been expected, since the number of prisoners of war was large and the verdict of history on the care of these men a matter of much importance to Germany. Instead, they selected a man whose experience in matters of nutrition had been largely confined to animal husbandry. The writer learned in his first interview with Professor Backhaus that he was not conversant with the literature of human physiology. He was well versed in animal nutrition from the older standpoint of energy equivalents. He was not acquainted with modern investigations on growth or with the current viewpoint of metabolism. He was practically unacquainted with the considerable work that had been done on adaptation of the diet, and was devoid of any conception of the psychology of rationing. He attempted to ration prisoners of war exactly as one would feed live stock. The knowledge of the nutrition of the human body includes that of the animal body, but it also includes something more; and this something more the director of subsistence of prison-of-war camps did not possess. In rationing human beings, one must not violate the laws derived from the studies of nutrition of animals; but merely to apply the feeding rules of the stock farm is not sufficient in the feeding of men.

In the published report of addresses delivered at the meeting of subsistence officers of the camps, frequent references were made to abuses by caterers. Camp authorities were also urged to permit the prisoners of war to prepare food in accordance with their own tastes as much as possible, a recommendation rarely followed; had it been adopted, much of the dissatisfaction of the prisoners with their rations would have been avoided.

From June, 1915, on, the head office issued over the signature of Professor Backhaus a menu for each month, defining in grams to the decimal place the amounts of each foodstuff that were to be served each day. Certain leeway for adaptation and substitution was permitted, but these had to show on the camp diet sheets that were sent to the central office for record and approval. One by one the contracts with caterers expired or were discontinued, and the camp authorities took over the management of subsistence.

The writer reached Germany in March, 1916, and departed in October. During this period, Germany passed from closeness to stringency in food supplies, and the writer was thus in a position to study the changes in the ration of the prisoners of war that accompanied this transition. While the student of the subject is able to predict an oncoming stringency of food supplies at a considerable distance of time, it is usually not possible to convince those in public authority that such a stringency is imminent, and this was the case in Germany. In March, 1916, the students of the subject realized that a critical situation was impending; but the authorities in charge of food control could see nothing of this until the crisis developed in the markets in May. This was reflected in the prison-of-war menu for June, which displayed a reduction of 40 per cent. from that of the month before.

Even the Germans make mistakes, and even the Germans admit they make mistakes. A famous pope has been credited with the remark that he cared not who conducted the arguments so long as he framed the definitions; and the Germans are willing to make such mistakes as are provided in their philosophy. In the Hegelian system, provision is made for logical and illogical mistakes. The German finds great relief in the reflection that his mistakes were logical. The attitude of the world toward this frame of mind is quite that of the family toward the surgeon who regarded the operation as a technical success though the patient died. One of the most striking differences between Englishmen and Germans lies in this: Englishmen blunder into mistakes, Germans reason themselves into mistakes.

The two mistakes that were responsible for most of the difficulties in the prison-of-war diet were disregard of the psychology of the diet and the selection of potato instead of bread as the keystone of the ration. The last mistake the German authorities made against their own people, and it has been the cause of great misery to them. The crop of 1915 was short on grain, long on potatoes. Two hundred gm. (7$\frac{1}{10}$ ounces) of flour per diem was set as the cereal ration of the German people. The rest went to stock feed. Had the ration been set at 300 gm. (10$\frac{7}{10}$ ounces) per day, where it could have been set, this could have been maintained, as was repeatedly demonstrated by German scientists, involving only the withdrawal of so much grain from stock feed. In June, 1915, the bread ration of the prisoner of war was set at 300 gm. per day. The flour ration issued to the kitchens to be used in the preparation of the food and in the baking of extra bread and cakes was limited to 500 gm. (18 ounces) per week. This amounted to a total flour and cereal ration of about 270 gm. (9½ ounces) per day. There was a stated rice ration of 200 gm. (7$\frac{1}{10}$ ounces) per week, but this was largely on paper, as rice soon became scarce.

As against this was the normal British consumption of 310 gm. (11 ounces), the French and Russian of 400 gm. (14$\frac{2}{10}$ ounces) per day. Entirely apart from the kind and quality of the bread, the prisoners naturally felt the amount to be entirely insufficient. The digestive tract becomes accustomed to a certain bulk of the staple foods. When other articles in the diet do not suit, the few staples become the mainstay. Many of the dishes of German cooking, the French and British could not eat. When, therefore, the bread was low in amount, the deprivation was doubly felt. The same fact held for the entire German people. It did little good to substitute potato, since this disarranged the entire bulk habits of the digestive tract.

As a final misfortune, the supply of potatoes gave out early in the spring of 1916, and the prisoners and population together had to go on short rations of potato as well as of bread. In the early months, bread was on sale in the canteens; later this was interdicted.

The bread of the prison camps was the center of storms that concerned more than quantity, involving also kind and quality. Of the kind of bread served, the amount was later more than enough for Frenchmen, Belgians and British. The bread was a coarse mixture of rye (70 per cent.) and wheat (30 per cent.), dark in color, sour in taste and inclined to be soggy and gummy inside. The American bread faddists who are seeking for ever and ever more laxative breads ought to import, after the war, some of the bread makers of the German prison camps; they certainly have perfected the making of bread that would leave an indigestible residue. The bread was sour in reaction, as in the sour fermentation method of central and eastern Europe. This bread was not necessarily indigestible to much greater extent than our graham bread; indeed, the acid fermentation probably had some action on the starch and cellulose. But it was revolting in appearance and in taste. It is a matter of taste. The German prisoners of war in England used to complain of the constant use of white bread; as late as August, 1916, the writer saw in the prison camps in England pieces of sour black German bread sent over from Germany to the men as delicacies, in response to their appeals for a little of the home bread. The smell of the bread is like the smell of the sod, ineffable. The Russians made no complaint against the bread except that the ration was low. And, when an irate Tommy would take a piece of bread and throw it as far as he could, a Russian would eagerly pick it up and eat it. The British boys did not believe the bread had to be made that way; they believe that the Germans were "rubbing it into them," trying to make the German bread as a penal procedure. When in the fall of 1915 potato was added to the bread, matters only became worse. When the writer visited the camps in the spring of 1916, the bread contained as much as 30 per cent. of potato. In some of the camps, relatively good bread was baked; in many of the camps nothing approaching good bread could be produced. In Parchim, where the commandant was ceaselessly busy doing his best to improve conditions for the men in his camp, the making of bread had been evolved to such an art that the 30 per cent. of potato was entirely concealed, and the bread tasted like a common whole-grain bread of coarse texture. In the final analysis, it was a matter of endeavor; where conscientious effort was expended on the problem, results were secured; where the complaints against the bread were lightly disregarded, conditions remained bad. At the best it was a low grade bread, difficult of digestion.

In June, 1915, a limitation of supplies applicable to all camps was issued by the Department of War. Each prisoner of war was to receive not in excess of 300 gm. (11 ounces) of bread, from 200 to 500 gm. (7 to 17 ounces) of fresh vegetables and 1,000 gm. (36 ounces) of potatoes on the average daily; and weekly 200 gm. (7⅒ ounces) of sugar, 500 gm. (18 ounces) of flour, 100 gm. (3½ ounces) of fat (usually soya oil that lasted until late in the fall of 1915) 200 gm. (7⅒ ounces) of field beans, 300 gm. ($10\frac{7}{10}$ ounces) soya beans, 200 gm. (7⅒ ounces) of rice, 440 gm. (15 ounces) of fresh meat, 100 gm. (3½ ounces) of sausage made of blood and internal organs, 150 gm. (5 ounces) of dried sea fish and 200 gm. (7⅒ ounces) of herring. No butter was provided, and margarin was soon dropped. Since it was the rule to serve the special articles of diet at noon in the form of a thick soup, this left little else than bread and coffee or tea for breakfast and supper. Without butter or conserves, this made a poor and unsatisfying breakfast and supper. ("A breakfast consisting of thin coffee without milk or sugar is really not a meal at all, especially if bread is lacking"—a quotation from an official discussion of the prison-camp fare.) The suppers did often contain potato salad or boiled potatoes with herring or sausage, at the beginning: later the suppers approached more and more the compositions of the breakfast. During the past winter the writer has seen prison bills of fare in this country that were almost identical with the German menu; dry bread with coffee or tea for breakfast and supper, soup for dinner six days in the week. The quality of the foodstuffs was, in the experience of the writer, usually not worse than poor. Naturally the grades were not of the best, but decomposed foodstuffs were not often encountered. The coffee was very poor; at first it was one third coffee; two thirds substitutes; later it was all substitute. The cocoa was a powder of husks that cost 5 cents per pound; milk was rarely seen. The sugar carried the tax, as it was expected that the cost of the ration would be repaid at the end of the war. The fresh fish, usually served once a week, was almost always excellent, and this was the dish most looked forward to by the prisoners. The paucity of fat was one of the most grave defects of the diet. Foods low in fats never seem properly cooked. They digest rapidly, and thus hunger appears too soon after a meal, and the sense of having been well fed is destroyed.

The amount of foodstuffs in the diet of the camps was maintained at the set level until June, 1916. In April of that year the ration was normal, containing: protein, 89 gm. (3⅕ ounces); fat, 30 gm. (1⅒ ounces), and carbohydrate, 510 gm. (18 ounces), with a total of 2,740 calories for a nonworking ration. In June the ration for nonworking prisoners fell suddenly to 1,720 calories: protein, 57 gm. (2 ounces); fat, 21 gm. (¾ ounce), and carbohydrate, 310 gm. (11 ounces). This was evidently the result of the mandate of the food controller, von Batocki, who has just been relegated to private life by the new chancellor. The writer has not seen the diet sheets for all of the months since June, 1916; but from those that he has seen, the intake has never since that time risen from 2,000 calories; and the best available information runs to the effect that the ration since our entrance into the war has not exceeded that amount. This quantity of food was, of course, too low to maintain nutrition. It meant loss of weight, subnutrition, lowering of resistance to infections and other diseases—in short, starvation for some of the men. Many men, on a diet of 1,800 calories, will waste greatly and reach a low level in weight at which they can live on the low intake. The defenders of Ladysmith went for three months on 1,500 calories per day. But the intake of the prison-of-war camps in Germany since June, 1916, must have meant subnutrition for all of the nonworking men who had no other food supply, and death directly and indirectly to some.

It was the German principle of ration of war prisoners, as officially stated to the writer, that Germany under food blockade would give to the nonworking prisoners that amount of food only that was available for the poorest nonworking citizens of the empire. This was also practically the Russian rule; the German and Austrian prisoners were given the ration available for the poorest refugees who had no employment. Any other rule would have implied that the Germans were to keep alive the prisoner of war at the expense of German citizens. It is the conviction of the writer that in the large industrial cities of Germany last summer many individuals did not receive more food than was provided in the prisoner-of-war ration, or any better ration.

The equipment of the camp kitchens consisted usually of a number of large soup kettles, a small stove for roasting, and a hot water boiler. The thick soup was usually served to the men directly, standing in line with bowls in their hands. They usually returned to their barracks to eat the meal, but were permitted to do so in the open. In some camps the soup was served to each barracks in large buckets. There were dining tables in few camps; the men had usually to sit on beds or boxes, or stand while eating. The men were not permitted to have knives or forks, spoons alone being permitted, since it was feared that weapons for escape or attack could be fashioned from knives and forks.

With the lack of knife and fork appeared another characteristic of the noon-day meal that was bitterly resented. The meat allowance was very low, for the past year only a third of a pound per week. But this had to be cooked in the soup, and was lost in the mass. Men thus fed acquire a positive homesickness for the sight, taste and touch of meat; they long for the act of mastication of meat. The animals were usually killed in the camps. Everything was used as food but the horns, hair, hide, hoofs and contents of the alimentary tract. The internal organs were worked up with blood into a blood sausage, whose appearance was confessedly revolting. Beef, pork and mutton were all served, according to circumstances. The bones were crushed, the mass heated, and the fat collected by centrifugation. Frozen rabbits from Australia were served as late as the fall of 1915.

All this did not involve the prisoners of the United Kingdom at all, those of France to no marked extent; but it did concern the Russians and the Serbs, who received no foodstuffs from the outside world. As early as the fall and winter of 1914-1915 the British received practically all their foodstuffs from home, and the French to an extent of over one half of their needs. During the six months the writer was in personal contact with the situation in Germany, the Tommies subsisted almost entirely on the supplies sent from home. The international agreements dealing with war provide that prisoners of war may receive packages of tokens, delicacies, clothes, etc., from home. This comfort package, called by the Germans the "love parcel," was expanded by the British into a full ration package. When fresh fish was served or potatoes boiled in their skins, the Tommies would take their share. Otherwise, one or two things would happen. In good camps, the food allotted to the Tommies would be delivered to their barracks by their messengers, and then turned over to the Russians. In bad camps, this was not permitted, and the food was not prepared for the British. The French and Belgians took more or less of the food according to their taste, to fill out the inequalities and insufficiencies of their food parcels. Some of the German dishes were not so revolting to the Belgians, and as a rule they were more adaptable in the direction of German cooking.

In June, 1916, the question of placing a check on the food parcels was brought up by the minister of war. The camp authorities were flooded with letters of protest from Germans, protesting that Germany permitted the prisoner of war to receive from the outside world food in variety, kind and quantity in excess of that available to the poor Germans under blockade. A movement was inaugurated to compel the government to act in the direction of repression. It was supported by the military parties, opposed by the chancellor and the Foreign Office. At that time the Germans were much concerned over the treatment of German prisoners of war in Russia, and supplies of food were being sent to them in Russia under the auspices of the American Y. M. C. A., whose leading representative in prison-of-war service, A. C. Harte, had accomplished an enormous task of alleviation in Russia and Germany. The fear that any repression of the food parcels to Germany would lead to similar repression on food parcels into Russia undoubtedly tended to deter harsh action on the part of the German military authorities. But probably the most deterring factor in the final decision to impose no conditions on the shipment of food parcels into Germany was the vigorous opposition of Ambassador Gerard. The position of the American Ambassador on all matters involving the rights of the prisoners of war committed to his charge was unequivocal and admitted of no compromise. Supported by Bethman-Hollweg and von Jagow, the demands of Gerard for uninterrupted continuance of food parcels of unlimited contents into Germany was finally agreed to by military authorities. This raised a storm of protest, because the Germans felt that these prisoners should be made to feel the pinch of the blockade. And, of course, through the sentries the Germans knew exactly what foodstuffs were being received by the British prisoners. In particular, the possession of butter by the British prisoners seems always to arouse the Germans' wrath, since butter was the article most scarce and most keenly missed. Ambassador Gerard obtained one further concession, in practice if not in principle. In Ruhleben were a considerable number of civilian Englishmen who had no connections in England engaged in sending food parcels. When the low ration of June, 1916, was first introduced, these men were strictly "up against it." Gerard secured permission for food to be shipped in for them in bulk, not as individual parcels, but as lot shipments of foodstuffs to the American Ambassador, to be distributed to the needy men.

Up to the fall of 1916, the food parcels to Tommies were sent out from the mother country in an unorganized way, by families, associations, clubs, churches and societies. In the autumn of that year, the victualization of these men was organized in London and centralized in one committee. A ration was selected that would conserve well, pass censorship easily, stand transportation, keep well in the camp, and wear with the tastes of the men. The supplies included soap and tobacco, two scarce articles in Germany. Bread was baked in Berne, and supplied by a committee of women organized under Lady Grant-Duff, wife of the then minister to Switzerland, and supplied to every Tommy in Germany. So far as the writer could learn from the prisoners themselves, these food parcels were never appropriated by the Germans. Delivery was often delayed, especially in working-camps. The packages had to pass the censor, outgoing as well as incoming, and this often consumed time. The necessity of censorship can be understood from the statement that on a number of occasions a suit of clothes was removed from a hollowed-out loaf of bread. The writer has recently learned from a nurse who has only lately talked with the Tommies exchanged to Switzerland that the delivery of food parcels continues without loss or difficulties. The shipment of these food supplies packed as individual parcels imposed a serious burden on the German transportation system. Sometimes 50,000 packages a month would be delivered to a camp, and a great many express trains were kept in operation by the parcel shipments to the camps. This led to difficulties between the transportation authorities and the censor's office, since the shipments could have been greatly expedited if the rules of censorship had been less strict. All in all, the food parcels were as much a source of discomfiture to the Germans as they were of sustainment to the Tommies.

The food parcels were also the occasion of internal difficulties in the camps. In order to use their supplies, it was necessary for the prisoners to have facilities for cooking. Coffee and tea required hot water, and many of the tinned foods were meant to be warmed up. In good camps, the men were given free facilities to so serve themselves. They could purchase coal, and they were allowed stoves so long as they were careful to guard against fires. In the bad camps, these privileges were refused, and the most petty obstacles put in the way of the use of these food supplies. In the good camps, men were allowed to share their food with other prisoners. In some of the bad camps, the giving of food to prisoners of another nationality was prohibited. In one of the camps, when on the occasion of an inspection by a member of the American Embassy staff, call was made for complaints, a little Irishman stepped out of line and in a shrill voice demanded: "I want to know why in hill I can't give me extry grub to the sick Frinchmen?" It was in such ways that the camp of good management was distinguished from the camp of bad management. When the men of the American Embassy spoke of a good or a bad camp, they referred not to the material equipment, but to the point of view of the commandant. When the Tommies emptied the tins of food they threw the empty cans into a heap. The Russians, like the bears back of the hotels in Yellowstone Park, would hunt over the cans and lick them clean. In one camp this was forbidden! The tin in the cans became a matter of valuable recovery of the metal to the Germans, so that foods in tin may not now be shipped to prisoners in Germany, being forbidden by explicit regulation.

The writer is advised that the shipments of food to the French prisoners in Germany has lately fallen off, an expression of food stringency in France. This is a matter of very great importance and urgency, since with the extreme prevalence of tuberculosis among the French prisoners, a lowering in the intake of food would have a terrible result. This matter of victualization of the French prisoners is now in the hands of the American Red Cross.

All the camps originally contained canteens, where foodstuffs, tobacco and articles of personal need could be purchased. But since June, 1916, no foods are on sale in the camp canteens. Beer and wine were on sale in most of the canteens. The amounts that could be purchased were very limited; a pint of beer or a half pint of wine two or three times weekly, under strict control. The men prized this privilege very highly, not being teetotalers and not disposed to argue as to the effect of such libation on the statistical expectation of life. The camp authorities were a unit in commending the system. No such system obtained in England, despite the petitions of the prisoners and the favor of the majority of the commandants. Assured that sentiments of prohibition were not at the bottom of the refusal, the writer was forced to regard this as a petty form of reprisal, the only sign of this iniquity he was able to find in any of the British camps. The faults in the British camps, where such existed, were due to lack of organization. The faults in the German camps, where such existed, were usually those of persecution, usually petty, sometimes grave and brutal to a serious degree.

The diets in the working camps were usually much more satisfactory than in the parent camps. Employers knew that if the men were well fed they did better work, though in some instances coming under the observation of the writer, employers tried to secure through terrorism by sentries work that was not warranted by the diet. Naturally, a brutal employer, when in possession of prisoners as laborers, has opportunities in the direction of brutality and coercion not possible in times of peace. And, of course, Germany contains such employers just as other nationalities have them. The control of this abuse by employers lay in official inspection; but the inspection system of the working prison camps was both inefficient and inadequate. The writer observed a number of instances of abuse in the direction of underfeeding in working camps, and the matter was all the less excusable as the men were working largely on rations from home. Generosity in the matter of diet could hardly be expected when the standards of work by which the men were judged were such that in one instance the official time-card of a group of men engaged in cultivation of virgin moorland credited the men with work equaling the value for the day 2½ cents. Ten cents per day was a common rate of payment. The men billeted on farms fared the best. Here the lack of long standing racial hatred between German and English came to the good of the Tommy. After being billeted on a farm for a few months, the Tommies and the families of the peasants apparently forgot that their countries were at war, so far as their personal relations were concerned. The Tommies developed a sort of pigeon German and lived in amity with their employers. Very often the prisoners would share with the simple peasants their delicacies from England in exchange for the eggs and butter that the food controller was vainly trying to extract from the country districts for the benefit of the industrial cities. The French and Belgian prisoners did not fare so well. The French never dropped the hauteur and distance of an ancient racial antipathy. The Belgian never lost the immediate sense of resentment at the sufferings of his innocent people. The Russians had few difficulties, because the peasants were accustomed to Russian agricultural labor in prewar days. Work is the salvation of the prisoner of war. If all the prisoners could be employed in agricultural labor, that would be the best solution of the prison-camp problem.

The second mistake of the German management, as was stated earlier, lay in disregard of the psychology of the diet. In the first promulgation on the treatment of the prisoners of war, issued by the War Department, Sept. 11, 1914, the camp authorities were warned not to disregard the differences in habit and customs that existed between the prisoners of different nationalities, and to pay particular attention to the diet of prisoners. This, however, was not done. Why not? The most common answer given by the camp commandants ran to the effect that they did not have adequate and competent personnel, as the military arm seized all. There was, of course, truth in this extenuation, certainly for the first year. But later the causes of the disregard of the psychology of the diet were of a different nature. One was the feeling of bitterness that developed as the war was not brought to a successful conclusion. "They are allies, they fight together; therefore, they live together, sleep together, eat together; no discrimination; the same for everybody." Such in effect was the answer that the writer has heard time and time again. This was the spirit that promoted the commandants in Wittenberg and Gardelegen to disregard the advice of their surgeons, on the first appearance of typhus, that the Russians must be separated from the British, Belgians and French, with the result that epidemics got under way that should have been checked at the outset. This was the spirit that in many cases prompted the refusal to allow the different nationalities to be barracked separately, desirable on account of the different habits of the Russians and British—for example, in the matter of open windows in the sleeping quarters, highly prized by the British, feared as dangerous by the Russians. This was the spirit that ordered the cooks to cook all the food up in one way, the easiest way, perchance: "Let them be allies in the eating of German prison-camp fare." In such an arrangement the one to come out ahead was the Russian. The problem of feeding a Russian peasant is a problem in solid geometry; his sole concern is that of the third dimension. The writer has heard the most unbelievable stories of the capacity of the Russian alimentary tract, such as the eating at one sitting of 50 quarts of purée of peas by seven prisoners. At home the Russians lived largely on bread and vegetable soup, with little meat or dairy products. In the camps with a low bread ration, low in quantity but to them satisfactory in kind, the Russian was entirely satisfied with camp soup if the amount was sufficient. The poor Belgian was against the diet on constitutional grounds; after what he had been through in his native land, any dish that the German concocted could be nothing else than bad. The average Tommy had the point of view in diet that a luncheon from the joint in Simpson's, a piece of rare meat, a bit of boiled cabbage and a potato, each unseasoned, represented the heaven of gastronomics. The Frenchman was accustomed to the highly concocted and deftly seasoned sautés and made-up dishes that the simplest French woman can do so well, and for the rest was dependent for half his intake on white bread. The line of least resistance was to have separated the nationalities as much as possible, have them install their own cooks, and turned over to them the raw materials, as far as possible, and allowed them to prepare the foods as they desired. This was the system arrived at in the prison-of-war camps in Great Britain as the simplest solution of the problem. This the German caterers refused to do in the first months, because of the reduction of profit to themselves. This the camp commandants, for the most part, refused to do later on, because they would concede no distinctions to the different nationalities.

Later, two more or less valid reasons did develop. One was the size of the camps. With the huge camps running up to forty or fifty thousand, the Russians always greatly predominating, it was less feasible to segregate the barracks or the kitchens. The second related to the utilization of food. The camp authorities were afraid that if the men were given raw materials they would cook what they liked and discard the other articles. For example, when potatoes, field turnips and dried sea fish were issued for one meal, the British would soak out the fish and broil it, boil the potatoes, and throw the turnips away. Therefore, to secure complete utilization, the Germans cooked the three into a thick soup, and the ingredients had all to be eaten or let lie. Cooking up all the materials compelled the consumption of the poorer foods, and reduced the cost of maintenance. And as the supplies became more and more coarse, approximating fodder, the more necessary it seemed to cook them altogether. When an Englishman protested that he could not eat such a mess, the German pointed to the Russian contentedly consuming a double portion, and gave a shrug of the shoulder as much as to say, "If it is good enough for your ally in the contest for higher civilization, it is good enough for you." The more the Tommy fought the diet the more determined the German was to make him eat it, go without, or provide his own food. The Tommy finally settled the row by supplying his own food. The Frenchman, less obstreperous and more dignified, took the food when it displeased him least and pieced out with a half supply from home. The more the western Allies shipped in, the more there was for the Russian. When the Russian peasant has not enough to eat, he stands for all the world like a big hungry-eyed docile calf, locked out of the maternal stall; there is no resentment, only appeal.

The psychology of a diet is made up largely of externalities that, on paper and in fact, are much less important than protein, fat, carbohydrates, vitamins, salt and roughage. But as a matter of experience, taste, palatability and the normal appearance and consistency of the foods are of great importance. The Germans had had long experience with civic kitchens, and citations enough can be made from German writings warning against the effects of monotonous soup rations that lack all individuality as dishes. These externalities of diet are important to the normal individual. They are still more important to the abnormal individual, as may be seen in the daily experience in the sickroom. Now the truth is, the prisoner of war does not long remain normal. The crisis of battle, the terror of capture, the transition of circumstances of living, the depression of patriotism, the gloating of the captor, the abnegation of defeat, the homesickness that becomes a positive nostalgia, the insomnia—these all combine to produce reactions in the nervous system that easily lead to perversions in the physiologic functions. When finally is added to this a diet that does not please and idleness, mental and physical, the average prisoner of war, no matter in what land, lives on the verge of the abnormal. Under these circumstances, the externalities of the diet assume and finally possess an increased importance. The constant row about the preparation of the food kept many of the camps in perpetual uproar. Fault there was on the part of the prisoners of war, in that they sometimes made absurd and exaggerated complaints. But the primary and responsible fault lay with the camp authorities, in failing to recognize how serious would be the results of a constant forcing of an unsatisfactory diet. In particular the constant eating of thick soups gets on the nerves. They looked like swill, they left nothing to mastication, and with this manner of cooking the best tastes of the ingredients were not developed; indeed, the particular tastes of the ingredients were lost. German experts in dietetics knew all this, of course. In one of the official publications dealing with the diet of the German camps, attention was drawn to the fact that constant use of soups as the chief dish caused illness in some individuals. And when they began civic feeding on a large scale last summer, loud and numerous were the warnings to the authorities not to repeat the very faults that had been committed in the prison camp. But the German experts in human nutrition had nothing or little to do with the prison-of-war fare. That was being done on the basis of the model stock farm: the men were dieted precisely like domesticated animals. At the time of highest prices of food in the summer of 1916, Professor Backhaus stated to the writer, "I can feed men brilliantly on 12 cents per day." The cost of our army ration is 42 cents. Even the Russians finally turned against the soup diet.

Wise commandants took a different position, and allowed freedom in the preparation of food. The writer has visited camps where the different nationalities were cooking their food in their own way, with satisfaction and without friction, also without losses to the commissary. It was for the most part merely a matter of consideration versus ruthlessness. We have the same things in some of our institutions. With abundant public funds, good foods are purchased; when prepared, the final product is a swill. With the average camp commandant the cause lay in the constitutional disinclination of the German to permit any individual liberty. The prisoner of war could not be allowed self-management; the authorities must do all the management. Now and then a commandant would see deeply enough to disregard this shell of sophistry, with immediate results for himself and his camp. With the right kind of camp commandants, the subsistence would have been better if Germany had not been short of food; with the wrong kind of commandants, conditions would not have been improved if foodstuffs had been abundant. If Americans are taken prisoners and sent to Parchim, Saltau, Friedrichsfelde or Wahn, they will wonder on what the printed stories of the harsh treatment of prisoners of war are based. But if they are taken to Lemberg, Minden, Langensalza or Schneidemühl, they will find it out for themselves in an unfortunately short time, unless these camps have suffered change of commandants. The German system of military control is bad, in that it tends to harshness in discipline, long notorious in the case of their own troops. When this military system was applied to prisoners of war, it became much worse in the hands of a camp commandant who was bitter because he had been compelled to give up his business to become a reserve officer in charge of a prison camp, or who, retired, felt that the battle of Verdun would have been won if he had been there at the head of a division instead of at the head of a camp of prisoners.

Officers have an entirely different system of rationing. The imprisoned officers run a mess, precisely as in their own armies in active service. The cost is charged, directly or indirectly, against them or their country. The officers of the allied countries were, for the most part, comfortably housed in Germany and were free to run their own mess until foodstuffs became scarce. They were often subjected to reprisals, usually petty but sometimes grave, and these reprisals were occasionally directed against the mess. After foodstuffs became scarce in the spring of 1916 and the rationing system was introduced for the empire, the imprisoned officers were not allowed to purchase food in excess of the amounts allotted to Germans. They imported freely foodstuffs of all kinds, and really fared fairly well. The prices charged for domestic foods were often excessive, and petty restrictions were sometimes placed on the amounts of fuel that could be purchased. The natural tendency in Germany was to treat officers well, an expression of the feeling of caste in a military country where the officer occupies a position of social distinction. But the effort failed for reasons of psychology; the Germans fail in the handling of prisoners of war just as they fail in the administration of colonial affairs. Instead of drawing out the qualities of men, German officials attempt to impress their stamp on them.

In accompanying tables are presented the two weekly diet sheets, which will serve to illustrate the subsistence in the German prison-of-war camps. The first is typical of the period prior to stringency in foodstuffs; the second serves as a contrast, and illustrates the present state of affairs.

TABLE 1.—WEEKLY DIET SHEET TYPICAL OF PERIOD PRIOR TO STRINGENCY IN FOODSTUFFS*

	Gm.	Ounces.		Gm.	Ounces
Bread	2,100	75	Sugar	200	7.1
Flour	270	9.6	Legumes	150	5.3
Meat	300	10.7	Fat	70	2.5
Fish	300	10.7	Maise grease	180	6.4
Herring	150	5.3	Pearl barley	100	3.5
Potatoes	9,000	321	Dried fruit	50	1.8
Vegetables	1,800	65	Marmalade	100	3.5
Skim milk	400	14	Tea	16	0.5
Sausage	200	7	Spices, herbs	30	11.1
Cheese	100	3.5	Cocoa	40	1.4
Nutrient yeast	40	1.4			

*Per diem: protein, 89 gm.; fat, 30 gm.; carbohydrate, 510 gm.; calories, 2,740.

TABLE 2.—WEEKLY DIET SHEET TYPICAL OF PERIOD OF STRINGENCY IN FOODSTUFFS*

	Gm.	Ounces.		Gm.	Ounces.
Bread	2,100	75	Fat	65	2.3
Flour	50	1.7	Maise grease	100	3.5
Meat	200	7	Pearl barley	60	2.1
Sausage	200	7	Fruit	300	10.7
Fish	325	11	Marmalade	100	3.5
Potatoes	3,500	125	Tea	4	0.15
Vegetables	1,650	59	Coffee	6	0.21
Skim milk	500	17	Chicory	15	0.5
Cheese	100	3.5	Cocoa	40	1.5
Nutrient yeast	20	0.7	Spices and herbs	20	0.7
Sugar	130	4.8	Mustard	50	1.7
Legumes	150	5.3			

*Per diem: protein, 57 gm.; fat, 21 gm.; carbohydrate, 310 gm.; calories, 1,720.

It is apparent from these figures that our government must undertake and organize the feeding of Americans who may be taken prisoners of war and confined in Germany. This has, indeed, been already undertaken. Food parcels can be sent in via Berne or Copenhagen, and the system of receipts affords a guaranty that the parcels are received by the prisoners. If food conditions in Germany become stringent, the military authorities may decide to rob the prisoners, reversing their previous decision, just as they reversed themselves in the U-boat campaign. Should the prisoners be robbed of their food parcels, the Allies could have recourse to nothing except reprisals on German prisoners of war—which Heaven forbid, since the western Allies could never, in theory or practice, follow the Germans in reprisals.

PROPHYLACTIC THERAPY FOR RICKETS IN A NEGRO COMMUNITY *

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For many years cod liver oil has been regarded as the sovereign remedy for rickets. Its claim to therapeutic virtue rests not only on many years of clinical experience but also on metabolism tests showing its beneficial effect on the retention of calcium. It may be properly regarded as one of the well established therapeutic agents and one which should be widely utilized. It seemed, therefore, worth while to investigate whether its usefulness could not be extended to the prophylactic treatment of rickets.

TABLE 1.—COMPARATIVE INCIDENCE OF RICKETS AMONG INFANTS RECEIVING AND NOT RECEIVING THE PROPHYLACTIC THERAPY

	Duration of Therapy, Mo.	Number of Infants	Infants Not Developing Rickets	Infants Developing Rickets	Percentage Nonrachitic
Oil given (average total 54 ounces)	6	32	30	2	93
Oil given (average total 23 ounces)	6	5	4	1	80
Oil given (average total 21 ounces)	4	12	7	5	58
Oil not given	..	16	1	15	6

No doubt cod liver oil has frequently been employed in individual instances in this way. As far as we know, however, no extensive test, embodying a considerable number of cases and continuous and careful observations, has been carried out. This is the task to which we set ourselves.

For various reasons we decided to carry on the investigation among a negro community, and for this purpose selected a district known as the Columbus Hill district. Our main reason was the fact, agreed to by all, that of all races the negro is most subject to rickets. This tendency is so marked that it may be safely stated that over 90 per cent. of the colored babies have rickets, and that even a majority of those that are breast fed show some signs of this disorder. It is evident that where rickets is so prevalent, an excellent opportunity is afforded for judging of therapeutic results.

Another factor which prompted us to select this district was that a survey of the section had recently been made by the Henry Street Settlement and National League for the Study of the Urban Conditions of the Negro, whom we wish to thank for their cooperation in this work. Thus the economic and living conditions, as well as the morbidity and mortality, had been given particular attention. The economic status of these people, as of all the negro population in the larger cities, may be summed up as very bad. The people pay high rents, earn low wages, and unfortunately have had but meager educational opportunities.

The mortality of the negro in New York City, according to the federal census of 1910, was 25.9 as against 15.3 for the white population. In the state and in a group of selected cities, the ratio was about the same. The mortality among the negro infants in the city was 202 in 1915, and 194 in 1916 for each thousand born, as compared with 96 and 94 among the white population in the same years. The Columbus Hill district, which has a population of about 9,000, bears the unenviable distinction of having the highest mortality of any neighborhood in the city, being New York's "black spot." In 1915 its infant mortality rate was 314 per thousand. Among these deaths respiratory diseases, such as pulmonary tuberculosis, pneumonia, and whooping cough, play a large rôle. This tendency has been noted by the city investigators as well as by the federal census bureau. In view of the fact that rickets is a predisposing cause of these respiratory diseases, it would seem particularly beneficial if this disease could be combated, for the purpose not only of improving the nutritional condition of the infants, but, at the same time, of reducing the infant mortality.

It was determined to give cod liver oil to about fifty babies between the ages of 4 months and a year, and to select, wherever possible, infants of families in which other children had had rickets. Before the oil was given, a careful physical examination of the baby was made, and a history of the case taken, involving the diet of the baby and of the mother, the economic condition of the family, the length of time they had lived in the North, and many other data which might be of interest in this survey. As the result of this investigation, we shall in the near future publish a study of the diet of the negro under urban conditions in the North, and attempt to associate it with the marked development of rickets among the children. We were fortunate in having the services of a nurse who had worked in this district for many years, and who was able to facilitate our access to the homes of these people. At the outset before the oil therapy was instituted, a physical examination was made and repeated at the end of two months, four months and six months, when the test was completed. Visits were frequently made by the visiting nurse and by one of us in order to follow the health of the infants and to assure ourselves that the oil was being taken. As was to be expected, there was a considerable number of mothers who, for one reason or another, were unable to cooperate in the work. These were either dropped absolutely from the list or were viewed as control cases. It so came about that although we began with eighty infants, this number was gradually depleted so that at the end of the period we had only forty-nine cases on which to base our conclusions. There were, on the other hand, compensating advantages. As the negro, in the choice of his home, is limited to certain definite localities, our follow-up work was not ham-

TABLE 2.—RELATIONSHIP OF BREAST AND ARTIFICIAL FEEDING TO THE PROPHYLACTIC THERAPY

	Duration of Therapy, Mo.	Breast Feeding		Artificial Feeding	
		Infants Not Developing Rickets	Infants Developing Rickets	Infants Not Developing Rickets	Infants Developing Rickets
Oil given (average total 54 ounces)	6	22	1	8	1
Oil given (average total 23 ounces)	6	3	1	1	0
Oil given (average total 21 ounces)	4	4	4	3	1
Oil not given	..	1	12	0	3

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* From the Bureau of Laboratories, New York City Department of Health.

* Read before the Section on Preventive Medicine and Public Health at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

pered by the great difficulties which usually beset those who attempt to keep track of people in this great city for a period extending over six months.

Our results are summarized in the accompanying six tables. It is seen that we were able to prevent the development of rickets in more than four fifths of the infants who received the oil for six months, and in more than one half of those who were given it for four months (Table 1). This result must be considered satisfactory when we note that, of the sixteen infants who did not receive oil, fifteen showed signs of rickets, though all of them lived under the same conditions and many in the very same families. No other treatment was given, nor was a change of diet or mode of life attempted which could account for the difference in the results between the two groups of cases. Table 2 shows that the cod liver oil proved to be a more potent factor than breast feeding in warding off rickets, and that almost all the colored babies developed rickets *even though* they were nursed. It is naturally impossible to set fixed boundaries and classifications for different degrees of a disease. In our clinical examinations we were guided mainly by craniotabes, beading of the ribs, and the enlargement of the epiphyses, and classified these signs as of four grades of intensity, which are designated in the tables by plus signs.

It seems unnecessary to go into detail regarding the data appended in these tables. Table 3 shows the results when a large amount of cod liver oil, an average total of 54 ounces, was given for a period lasting six months. Table 4 presents the benefits derived from smaller amounts of oil, an average total of 23 ounces, given for the same length of time. In Table 5 may be seen the effect of administering smaller amounts for a period of only four months, and finally a summary of the clinical course of the control cases among those receiving no oil is given in Table 6. We shall leave a consideration of the details to those who care to study the data of the individual cases. The conclusion, however, seems evident that the negro infants who received cod liver oil for six months regularly ("large amounts" indicate regularity of therapy rather than any increased dosage) are protected from rickets, whereas those who were given no protective therapy were almost certain to develop the disease.

It is difficult to state either the minimum length of time that the oil must be given to accomplish prophylaxis or the minimum dosage necessary. A review of the results as portrayed in the tables, however, shows that a four months' course of treatment, averaging a total of from 16 to 20 ounces of oil, is insufficient to afford protection (Table 5). Among twelve infants

TABLE 3.—SUMMARY OF CLINICAL EXAMINATIONS AND AMOUNTS OF OIL THERAPY (LARGE AMOUNTS FOR SIX MONTHS)

Case No.	Age in Dec. Mos.	Craniotabes				Rosary				Epiphyseal Enlargement				Ounces of Cod Liver Oil Taken During				Course of Rickets	Nursed
		Date of Examination				Date of Examination				Date of Examination									
		Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June	Dec. and Jan.	Feb. and Mar.	Apr. and May	Total Oz.		
8	10½	+	+	0	0	++	++	++	++	++	++	++	+	24	20	8	52	Improved	Yes
9	4	++	0	0	0	++	+	0	0	0	0	0	0	16	24	32	72	Improved	Yes
10	11½	0	0	0	0	++++	++	++	+	++	++++	+++	+	36	16	16	68	Improved	Yes
19	3½	++	+	0	0	+	0	0	0	+	0	0	0	20	12	16	48	Improved	Yes
20	12	0	0	0	0	+++	+	0	0	++	+	0	0	16	16	8	40	Improved	Yes
21	9	0	0	0	0	++	++	+	+	++	+	+	+	20	8	16	44	Improved	Yes
22	9	0	0	0	0	++	++	+	0	+	0	0	0	24	8	16	48	Improved	Yes
23	3½	+++	+++	+++	0	++	++	+++	++	0	0	++	+	12	8	16	36	Progressed	No
25	6½	+++	+	0	0	++	++	+	+	++	+	+	+	16	16	16	48	Improved	No
26	6	++	0	0	0	++	+	0	0	+	+	+	+	20	8	16	44	Improved	No
28	1	0	0	0	0	0	0	0	0	0	0	0	0	8	12	16	36	Unchanged	Yes
35	9½	0	0	0	0	0	0	0	0	0	0	0	0	12	24	24	60	Unchanged	Yes
38	9½	0	0	0	0	+	0	0	0	+	0	0	0	24	20	8	52	Improved	Yes
41	5½	+	0	0	0	+	0	0	0	0	0	0	0	12	8	12	32	Improved	Yes
42	6	++	0	0	0	++	+	0	0	+	0	0	0	24	24	16	64	Improved	Yes
44	7½	0	0	0	0	+	+	0	0	0	0	0	0	16	8	24	48	Improved	No
47	13	0	0	0	0	++	++	0	0	++	++	++	+	24	32	24	80	Improved	Yes
48	9	+	0	0	0	+++	++	++	0	++	+	+	+	20	12	12	44	Improved	No
50	5¼	0	0	0	0	++	+	+	0	+	0	0	0	24	24	24	72	Improved	Yes
53	17½	0	0	0	0	+++	+++	++	+	+++	+++	++	+	24	24	24	72	Improved	No
54	4	0	0	0	0	0	0	0	0	0	0	0	0	24	24	24	72	Unchanged	No
55	6¾	0	0	0	0	++	++	++	++	0	0	0	0	14	14	15	43	Unchanged	No
57	7¾	+	0	0	0	+++	+	0	0	++	0	0	0	20	24	8	52	Improved	No
59	5	0	0	—	0	0	0	—	0	0	0	—	0	16	16	8	40	Unchanged	Yes
60	5½	++	0	0	0	+++	++	0	0	0	0	0	0	8	16	12	36	Improved	Yes
62	4½	+	0	0	0	+	+	+	+	0	0	+	+	20	16	8	44	Progressed	Yes
65	6¾	0	0	0	0	+	+	+	+	+	0	0	0	20	24	12	56	Improved	Yes
69	8½	0	0	0	0	+++	+	0	0	++	+	0	0	12	16	12	40	Improved	Yes
71	2¼	+	+	+	0	+	+	+	0	+	+	+	0	8	8	24	40	Improved	Yes
72	10	0	0	0	0	+	0	0	0	0	0	0	0	12	8	16	36	Improved	Yes
73	6½	0	0	0	0	0	0	0	0	0	0	0	0	40	32	24	96	Unchanged	Yes
77	2½	0	+	0	0	+	++	+	0	0	+	+	0	20	24	16	60	Improved	Yes

TABLE 4.—SUMMARY OF CLINICAL EXAMINATIONS AND AMOUNT OF OIL THERAPY (SMALL AMOUNTS FOR SIX MONTHS)

Case No.	Age in Dec. Mos.	Craniotabes				Rosary				Epiphyseal Enlargement				Ounces of Cod Liver Oil Taken During				Course of Rickets	Nursed
		Date of Examination				Date of Examination				Date of Examination									
		Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June	Dec. and Jan.	Feb. and Mar.	Apr. and May	Total Oz.		
2	9	0	0	0	0	+	+	+	+	+	+	+	0	12	4	4	20	Improved	Yes
3	9	0	0	0	0	+	+	0	0	+	+	0	0	12	4	4	20	Improved	Yes
49	5¾	+	0	0	0	+	+	0	0	+	0	0	0	4	8	8	20	Improved	Yes
61	8	0	0	0	0	++	++	+	0	0	0	0	0	12	12	4	28	Improved	No
70	6¼	0	0	0	0	0	+	++	+	0	0	+	0	12	8	8	28	Progressed	Yes

of this group, five were found to show progressive rickets It would seem that six months should be considered the minimum duration of treatment. It is likewise true that no hard and fast rule can be laid down as to dosage. Our plan was to give infants under 6 months one-half teaspoonful of oil three times a day and older infants twice this amount. It was found that almost all babies can take cod liver oil, although it may disagree temporarily and may have to be discontinued for short intervals when there is digestive disturbance. Infants of from 2 to 3 months tolerate the oil in half-teaspoonful doses, and younger ones may be given still smaller amounts. This study was not carried out during the summer months, so that it does not provide a criterion of the practicability of oil therapy in the warm weather. As the result of personal experience gathered at other times, we believe that with slight modification it can be pursued throughout the year. In summer, moreover, rickets seems to pass through a quiescent period; therefore treatment is not so necessary as in the colder season.

After a few months we arranged that instead of having the oil delivered to them, the mothers should call for it at the neighborhood settlement house, for which purpose an office hour was appointed for each morning and one evening a week. The report of this work gradually spread throughout the district, and the ordinary symptoms of rickets became the common knowledge of the mothers, who often brought their babies to the consultation with the request that cod liver oil be administered. In this way a rickets clinic was soon evolved. This would seem to be a logical development—that specialized clinics should be established to meet the particular needs of a given neighborhood. In Italy quinin is dispensed in clinics formed for those suffering from malaria. Along similar lines have been the creation of tuberculosis and cardiac clinics.

As a result of our experience, we would recommend that dispensaries of this kind be provided in large cities in the negro and the Italian districts, for rickets is almost as prevalent among the Italians as among the colored people. Such dispensaries do not have to be created at large expense. They can be instituted in connection with existing milk or baby welfare stations, where provision can be made for dispensing cod liver oil. The details of this plan cannot well be discussed, as they will no doubt differ according to special conditions. Whether it is necessary to use Norwegian oil is very doubtful; it is probable that a less expensive cod liver oil will produce equally good results. In order to combat the high infant morbidity and mortality among the negroes of the Columbus Hill district, Commissioner Emerson of the Department of Health will establish a rickets clinic this fall in connection with its baby welfare station, and will dispense cod liver oil at cost.

16 West Eighty-Sixth Street.

TABLE 5.—SUMMARY OF CLINICAL EXAMINATIONS AND AMOUNT OF OIL THERAPY
(SMALL AMOUNTS FOR FOUR MONTHS)

Case No.	Age in Dec. Mos.	Craniotabes				Rosary				Epiphyseal Enlargement				Ounces of Cod Liver Oil Taken During				Course of Rickets	Nursed
		Date of Examination				Date of Examination				Date of Examination									
		Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June	Dec. and Jan.	Feb. and Mar.	Apr. and May	Total Oz.		
15	8¼	+	0	0	0	+++	++++	++	++	++	++	+	+	8	16	0	24	Improved	Yes
27	16	0	0	0	0	0	0	0	0	+	+	0	0	12	12	0	24	Improved	No
33	2¾	0	0	—	0	0	++	—	+	0	+	—	0	12	8	0	20	Progressed	Yes
40	3	0	0	0	0	++	+	0	0	0	0	+	+	8	16	0	24	Progressed	Yes
53	7	++	0	0	0	++	++	+	0	0	+	0	0	12	16	0	28	Improved	No
63	2½	0	0	0	0	0	+	+	0	0	0	0	0	8	16	0	24	Improved	Yes
64	6¼	+	0	0	0	++	+	++	++	++	+	+	+	12	8	0	20	Improved	Yes
65	2¾	+	+	0	0	+	+	++	++	+	+	+	0	4	8	0	12	Progressed	Yes
74	2¾	0	0	—	0	0	+	—	+	0	0	—	0	8	16	0	24	Progressed	Yes
75	17	0	0	0	0	++++	+	+	+	++	++	++	+	16	8	0	24	Improved	No
17	4	+	0	0	0	+++	++++	++++	+++	++	++	+++	+++	8	8	0	16	Progressed	No
34	4½	0	0	0	0	0	0	0	0	0	0	0	0	4	12	0	16	Unchanged	Yes

TABLE 6.—SUMMARY OF CLINICAL EXAMINATIONS WHEN NO OIL WAS GIVEN
(SIX MONTH PERIOD OF OBSERVATION)

Case No.	Age in Dec. Mos.	Craniotabes				Rosary				Epiphyseal Enlargement				Course of Rickets	Nursed	Remarks
		Date of Examination				Date of Examination				Date of Examination						
		Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June	Dec.	Feb.	Apr.	June			
1	8½	0	—	—	0	++	—	—	++	+	—	—	+	Unchanged	Yes	
7	5½	+	0	0	0	++	++	++	+++	+	+	0	0	Progressed	No	Gave 12 oz. oil
11	4¾	+	+	—	+	++	++	—	++	+	+	—	++	Progressed	Yes	
14	15	0	0	0	0	++	++	++	+++	++	++	++	++	Progressed	Yes	Gave 12 oz. oil
16	2¼	0	0	—	0	0	0	—	+	0	0	—	0	Progressed	Yes	
18	6½	0	0	—	Died	++	+++	—	Died	0	++	—	Died	Progressed	No	
24	3½	+++	+++	+++	0	++	++	+++	+++	+	+	++	++	Progressed	No	Gave 12 oz. oil
31	3¼	0	0	*	+	++	++	*	+++	0	0	*	0	Progressed	Yes	
37	5¼	0	0	—	—	0	+	—	—	0	0	—	—	Progressed	Yes	
39	7¼	0	0	0	0	++	++	++	+++	+	+	+	+	Progressed	Yes	
43	2	0	+++	—	—	+	++	—	—	0	0	—	—	Progressed	Yes	
51	2	++	++++	—	++++	+	+	—	++	0	0	—	++	Progressed	Yes	
52	3	0	0	—	0	++	++	—	+++	0	0	—	0	Progressed	Yes	
56	2½	+	++	—	+++	++	+++	—	+++	0	+	—	++	Progressed	Yes	
67	3¼	+	++	—	+	++	++	—	+++	++	++	—	+++	Progressed	Yes	
80	2½	0	0	—	0	++	++	—	++	0	0	—	+	Progressed	Yes	

* Pneumonia.

ABSTRACT OF DISCUSSION

Dr. Haven Emerson, New York: We have been fortunate in New York in having the direct benefit of the whole series of Dr. Hess' rather striking experiments, not only the laboratory experiments with the experimental animals, but the observations in the institutions which he has under his control; and now these field experiments, in the very areas in which we have been attempting to make an impression on a racial problem of rickets. I will leave it to Dr. Sobel to tell you what has been done in meeting the problem among the colored children; but I think it is well for us to consider this report of Dr. Hess as a very important addition to our knowledge of so-called racial susceptibilities to disease.

We have been always told that the Italians and the colored people were racially susceptible to rickets. On a closer analysis it may easily prove to be that what we have put down as a racial susceptibility is merely a result of economic habit—their habits changing radically when they move from their normal habitat in the West Indies to an abnormal housing and economic condition in this city. The colored people buy the most expensive cuts of meat. They are apt to get meat that many of us would hesitate to buy for our own tables because of the high cost of it. Their racial habits of buying and preparing food may easily be the reason of this so-called racial idiosyncrasy to rickets.

Dr. Hess has suggested, and brought it already to the attention of the department of health, that we should dispense cod liver oil from the baby health stations. I think those of you who are responsible for public health administration realize how many are the requests for using the health department organization to promote or exploit some special substance. It would be just as logical to dispense sugar of milk or limewater at cost, or some of the proprietary foods which are found valuable in difficult feeding cases. The department of health has had to refuse to do that; but it is possible to see that a pure cod liver oil is furnished at the local drug stores.

Dr. Hess did not tell you one of the interesting results of his study and teaching. The mothers are now coming to his clinic saying: "I want to have cod liver oil for my baby." He asks them, "Why do you want it?" "They have little swellings around the end of the long bones; they have got little lumps on their wrists." The mothers are beginning to realize what is happening to the babies. He has carried on a campaign of education which is going to redound to the benefit of all the colored babies and diminish the death and sick rate of these children in a variety of ways.

Dr. J. Sobel, New York: No one is more interested in the infant mortality problem, probably, than I am; and any contribution along those lines, of course, is entirely welcome. We have a very definite infant mortality problem in New York City as far as the colored people are concerned. When I tell you that in 1915 the infant mortality rate per thousand births among colored children was 202 as against 96.1 for whites, and that in 1916 it was 193.3 against 91.2 for whites, in other words, that the infant mortality among the colored was 110 per cent. more than among the whites, you will understand readily that we have a definite problem to cope with. In the section that Dr. Hess is working in, the Columbus Hill district, or the San Juan district, as it has been termed because of the "peaceful" character of the population, the infant mortality is 314; and that naturally led to a great many observations, not only on the part of the department, but along Dr. Hess' lines. Rickets, of course, is a contributing factor toward infant mortality and predisposes the child to diseases of the respiratory tract, and to gastro-intestinal diseases, to say nothing of the occasional cerebral involvements; and if we can control rickets, we will diminish infant mortality along those particular lines. This is only a small proportion of the mortality, however, since I learned this afternoon that the infant mortality rate among the colored for congenital diseases was 71 as against 41 for the entire city.

As I look at the table of Dr. Hess I may be wrong, but I find in that table one of the most potent arguments for the increased feeding of babies with milk, rather than with cod liver oil. We find here that the mothers and, coincidentally, the babies get a large protein intake, that is, a large meat intake and a large egg intake, a comparatively good vitaminic intake in the form of fruits and vegetables, a fairly large corbohydrate intake, but a very low fat intake. The milk and the cocoa are practically the smallest intake of the people; and that shows us what we found out years ago, that one of the main causes of rickets is the deficiency in fat. We know that rickets is more common among children who take patent baby foods with a large carbohydrate content. If cod liver oil is a prophylactic agent against rickets, it probably works not specifically, but rather through its fat content; and if I can give the colored people an extra bottle of milk a day, I think that I would do a great deal better than by giving them cod liver oil; and, what is more, I know they will buy the milk in preference to the cod liver oil; in fact we have already had a great deal of difficulty in having these people purchase cod liver oil. I don't mean to say that they will not take it if we give it to them for nothing; but, as far as purchasing cod liver oil is concerned, it is a different proposition. As I see it, while, as a supplemental treatment, or a supplemental prophylactic agent, we might dispense or should dispense cod liver oil, still I think we would obtain better results if we educated the colored people to increase the purchase of milk.

Dr. A. F. Hess, New York: It is well known that milk will not prevent rickets. Children who get plenty of milk get rickets. Breast fed children get rickets; among the colored it is not at all unusual to see very marked rickets among the breast fed; so that the milk is not a protection. Just what is the specific nature of the cod liver oil, I do not know. Olive oil will not take its place. It requires some animal oil, probably from some glandular organ.

In this table milk was taken forty-seven times and cocoa thirty-eight; the latter was made almost entirely with milk. We must also remember that the yolk of the egg has a very high fat content. In order to simplify matters I have omitted the milk taken with tea and coffee. I have abbreviated the study very greatly, but have calculated all according to calories and find that they take an adequate number of calories of protein, carbohydrate and fat.

CARBON MONOXID POISONING

WILLIAM D. McNALLY, A.B.
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CHICAGO

The deaths from carbon monoxid poisoning in large cities now exceed those from any other poison. In Cook County our records show a steady increase in death by such asphyxiation. The total number of gas cases for 1916, 501, constitutes nearly 8 per cent. of the entire number of coroner's cases, taking fourth place in the numerical order of different forms of death for the year. The increase is to be attributed, not to carelessness or ignorance, but rather to the widespread knowledge of the ease with which carbon monoxid produces death, the more marked increase coming under the class of suicides, as shown in the accompanying tables.

Carbon monoxid occurs most commonly as a product of combustion in ordinary stoves, salamanders, furnaces, blast furnaces[1] and gas engines;[2] in fumes from explosions, and in "after damp" of explosions of methane and coal dust in mines; in mine fires, in the smoke of burning buildings, and in illuminating gas. In electric furnaces having limestone linings, the carbon dioxid is reduced to carbon monoxid by the heated electrode.[3] Tobacco smoke contains about 80 c.c. of carbon monoxid to each gram of tobacco burned.[4] Using an intermittent aspirator to imitate the smoking of tobacco, I found that the carbon monoxid of the inhaled smoke from cigarets was from 0.014 per cent. to 0.26 per cent. of the tobacco and paper consumed; from cigars it was from 0.027 to 0.15 per cent., and from pipe tobacco 0.027 per cent.

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[1] Willcox: Asphyxiation from Blast Furnace Gas, Technical Paper 106, Dept. of the Interior, Bureau of Mines, Washington, D. C., 1916.

[2] Hood and Kudlich: Bulletin 74, Department of the Interior, Bureau of Mines, Washington, D. C., 1915. Analysis of exhaust gases shows them to be a mixture of carbon monoxid, carbon dioxid, oxygen, nitrogen, hydrogen, water vapor and a small but negligible quantity of gasoline vapors. The amount of carbon monoxid varies with the size of the engine cylinder, good carburation and poor carburation; the maximum amount of carbon monoxid was 13.5 per cent. in tests made with gasoline mine locomotives.. The exhaust from automobiles contains varying proportions of carbon monoxid, from 1.16 to 6.62 per cent., and has been the cause of the death of a number of people. The blood from several necropsies was submitted to me for examination. I found the hemoglobin to be 36 per cent. saturated in one case, and 40, 53 and 64 per cent. saturated in three other specimens. Cases of poisoning from carbon monoxid have been reported in France in ambulances warmed from the exhaust gases of the engine.

TABLE 1.—ASPHYXIATIONS, 1912-1916

	Carbon Monoxid	Water Heaters	Acci-dental	Undeter-mined*	Suicides	Homi-cides	Totals
1912							
Jan.	29.48	1	14	8	13	0	36
Feb.	28.63	0	13	3	12	1	29
March	29.18	0	8	5	17	2	32
April	29.50	1	14	1	13	0	31
May	29.29	2	7	10	20	0	39
June	29.29	0	7	6	11	2	26
July	28.73	1	5	5	17	3	31
Aug.	28.97	0	6	2	8	1	17
Sept.	28.80	0	2	3	15	0	20
Oct.	29.26	0	12	9	8	0	29
Nov.	29.51	0	14	4	9	0	27
Dec.	29.20	0	22	5	20	1	48
1913							
Jan.	29.26	0	9	3	13	0	25
Feb.	29.30	0	14	4	9	0	27
March	29.57	0	20	9	7	0	36
April	29.33	0	6	3	20	1	30
May	29.77	0	12	7	17	0	36
June	29.01	0	17	5	11	1	34
July	29.76	0	5	1	17	0	23
Aug.	29.79	0	7	3	10	0	20
Sept.	29.63	1	16	4	15	0	36
Oct.	29.03	0	9	8	17	0	34
Nov.	29.97	0	11	12	7	0	30
Dec.	29.94	0	8	9	9	0	26
1914							
Jan.	23.6	0	10	2	24	0	36
Feb.	28.6	1	8	6	18	0	33
March	24.5	1	13	8	15	0	37
April	27.5	0	9	8	11	2	30
May	....	0	10	12	19	0	41
June	22.7	0	2	6	11	0	19
July	....	0	4	1	8	1	14
Aug.	27.1	0	7	4	14	0	27
Sept.	26.8	1	4	7	28	1	41
Oct.	25.5	0	18	11	28	0	57
Nov.	26.6	0	10	4	15	1	30
Dec.	26.6	0	13	16	15	0	41
1915							
Jan.	30.1	1	6	4	20	0	31
Feb.	30.1	2	14	12	15	1	44
March	29.8	0	15	5	26	2	48
April	29.2	1	14	6	19	3	43
May	25.2	2	10	7	17	0	36
June	30.5	6	11	7	25	0	49
July	27.8	0	6	3	30	0	39
Aug.	27.8	3	2	6	19	2	32
Sept.	25.4	1	7	7	17	0	32
Oct.	27.8	1	17	11	19	0	48
Nov.	27.0	0	13	9	20	1	43
Dec.	24.9	0	20	13	13	1	47
1916							
Jan.	23.9	1	16	9	23	5	54
Feb.	26.4	1	13	7	13	0	34
March	24.1	0	18	7	21	0	46
April	23.9	0	19	8	19	0	36
May	27.2	2	14	8	22	0	47
June	26.2	2	11	2	12	4	31
July	23.0	0	5	12	20	4	41
Aug.	24.2	0	5	4	12	0	21
Sept.	22.4	0	13	8	26	3	50
Oct.	22.6	0	23	9	17	1	50
Nov.	29.1	0	7	5	20	0	32
Dec	31.0	0	14	6	13	2	35

* Undoubtedly many of the "undetermined" cases were suicides, the evidence being inadequate to warrant a verdict of suicide.

The greatest percentage of carbon monoxid asphyxiation is through the medium of illuminating gas, which has the characteristic odor of the hydrocarbons accompanying the carbon monoxid gas. The familiar odor does not prevent many accidental poisonings, as the odor may not be perceived by those in deep sleep, or by a person with a defective sense of smell. It has been suggested that ethylene (C_2H_4), which is very poisonous to plants, might be the real cause of the gas asphyxiation.[5]

The proportion of carbon monoxid differs greatly in domestic and industrial gases, varying between 4 and 30 per cent., in coal gas 4 to 10 per cent., and 30 per cent. in water gas, and 20 and 30 per cent. in producer gas. Almost all illuminating gas contains a large proportion of water gas, so that when this gas is discharged into an inhabited space it becomes exceedingly dangerous. An atmosphere containing 0.2 per cent. is capable of destroying life.[6]

It is commonly believed that during the winter months the percentage of carbon monoxid increases, and that this is the chief reason for more deaths from gas poisoning. The percentage of carbon monoxid does not, however, increase during the winter. Table 1 gives the percentage of carbon monoxid and the number of deaths from gas asphyxiation for each month for the years from 1912 to 1916 inclusive. The more extended use of gas in the homes during the dark and cold months of the winter and the closed doors and windows, preventing proper ventilation if there are leaky pipes or loose cocks, accounts for the increased number of asphyxiations. All gas stoves, plates and heaters should be connected by metal instead of rubber. This precaution alone would save many lives each year.

TABLE 2.—TOTAL GAS ASPHYXIATION CASES FOR THE ELEVEN YEARS FROM 1905 TO 1915, INCLUSIVE *

Asphyxiation by Gas	Accidental	Undetermined	Industrial†	Water Heaters†	Suicide	Homicide	Totals
1905	59	55	...	...	83	7	204
1906	87	38	...	...	59	5	157
1907	76	61	...	...	74	1	212
1908	85	75	...	...	115	3	278
1909	102	81	...	...	107	12	302
1910	127	65	10	4	116	7	329
1911	103	66	4	7	115	2	297
1912	110	61	11	10	153	9	354
1913	118	64	...	1	163	3	379
1914	103	78	3	3	200	5	392
1915	126	93	5	17	242	6	489
1916	160	92	6	6	219	18	501
Total	1,256	827	39	48	1,616	78	3,924

* In this table, the cases are counted from December 1 to the following December 1, the fiscal year for the coroner's office.

† The industrial gas cases and those by water heaters were included with the "accidental" and "undetermined" up to the year 1910.

Carbon monoxid combines chemically with the hemoglobin of the blood to form a stable compound. According to the research of Nicloux,[7] one volume of carbon monoxid acts like 220 volumes of oxygen. The corpuscle is not dead. All it needs is oxygen under sufficient tension to displace the carbon monoxid. Hill[8] and Barcroft[9] have demonstrated that carbon monoxid combines more readily with unsaturated oxyhemoglobin than with hemoglobin. Hemoglobin will take up more carbon monoxid at a given tension if a little oxygen is present than if oxygen is completely absent. Hufner[10] found that 1 gm. of carbon monoxid hemoglobin contains 1.338 c.c. of carbon monoxid, computed at 0 C. and 760 mm. pressure. The oxygen absorbed from the air is normally taken up by the blood in the form of a loose chemical combination with the red coloring matter (hemoglobin) of the corpuscles, and in this form it is carried to the tissues in which it is used. Oxygen and carbon monoxid combine chemically with hemoglobin in equal molecular proportions, and therefore in equal volumes, the oxygen combination readily liberating its oxygen, while the carbon monoxid is relatively stable.

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[3] Moissan: Le four electrique, Paris, 1887, p. 15.

[4] Thompson: Lancet, London, 1904, **1**, 395. Fleig: Compt. rend Acad. d. sc., 1908, **146**, 1776.

[5] Matthews: Physiological Chemistry, 1915, p. 495.

[6] Haldane: Jour. Physiol., 1895, **18**, 430-462.

[7] Nicloux: Presse méd., 1916, **25**, 153.

[8] Hill: Biochem. Jour., 1914, **7**, 471-480.

[9] Barcroft: Biochem. Jour., 1914, **7**, 481-491.

[10] Hufner: Arch. f. Physiol., 1894, p. 130.

People nearest to the doors or windows in a room into which illuminating gas is escaping suffer the least, and those nearest the floor the most.

Case 1.—Dec. 22, 1906, E. F. and a woman went to a rooming house at 4 p. m. At 5 p. m. the landlady noticed the odor of gas coming from the room. As no one responded when she knocked at the door, entrance was gained from the transom. The man was found dead. The woman, still breathing, was removed to a hospital, where she recovered. The woman was on the inside of the bed, near a window. A gas heater was found in the room with two burners still lighted, and three unlighted burners from which gas was escaping.

Case 2.—Feb. 12, 1915, C. W. and roommate were found in a room unconscious from gas escaping from a defective hose on a gas heater. The roommate, who was nearer to a window, recovered.

Case 3.—March 16, 1916, F. M. A. died from gas escaping from a defective heater. The roommate on the inside of the bed nearer the window recovered.

Many other cases could be cited from our records, but the foregoing are typical, and the first case illustrates that a person can be asphyxiated in a room where a gas burner or jet is lighted.

LETHAL DOSE

Exposure to a contaminated atmosphere for two or three minutes may cause serious illness. Burrell[11] found that exposure for twenty minutes to air containing 0.25 per cent. of carbon monoxid made him sick for eight hours after the exposure. Air containing as little as 0.1 per cent. of carbon monoxid when breathed for several hours produced headache and vomiting with some members of the Bureau of Mines, while others were not affected. An exposure of ten minutes in a cellar has killed a person.[12] Two men in a cooper shop fire in Chicago, June 7, 1917, went into the burning building to recover their tools. In thirty minutes both were found dead. Examination of the blood showed that death was due to carbon monoxid asphyxiation (from smoldering wood).

DURATION

In the majority of cases the victims are found dead or die a short time afterward. Fishbein[13] reports a patient living five days, Long and Wicki,[14] thirty-six days, Sibelius,[15] three months. I have examined the blood of several patients who lived two days, and one who lived four days after exposure to illuminating gas. Recovery is usually complete within a week, but aftereffects may persist for weeks and months. O'Malley[16] reports a case of a woman who, poisoned by illuminating gas, did not regain her mental faculties for three months. He refers also to a case cited by Broudel, namely, that of a physician poisoned by carbon monoxid, who lost his memory, this amnesia lasting eighteen months, at the end of which time he fully recovered.

There are few references in toxicologic literature to homicidal poisons unaccompanied by simultaneous suicide by illuminating gas, or gases containing carbon monoxid.

Case 4.—Dec. 14, 1916, Mrs. B. turned on the gas, killing her two children. Her husband had committed suicide the previous day. The woman was found to be insane and was committed to an asylum.

Case 5.—June 26, 1917, a mother killed her baby with gas, attempting suicide. She was held for murder.

Carbon monoxid poisoning may be of interest in civil cases, for instance, under conditions in which death is a form of chronic poisoning and the results amount to criminal negligence on the part of another.

In another case, the estate of *Catchman Olsen* vs. *City of Chicago*,[17] the widow was given a verdict of $3,500, the death of Olsen having been proved to be due to a leaky gas-pipe in one of the repair shops of the city. When an insurance policy is involved it is of the utmost importance to show the presence of carbon monoxid by chemical examination, and to prove whether the case is a murder, a suicide or an accident, as a policy may be void in the case of a suicide. The origin of the poisonous gas may usually be found from the surroundings, as an open gas-jet, or a leak in the feed pipes. A loose-fitting stockcock of many a gas-jet may be opened by careless persons throwing their wraps over a wall gas-bracket or over the gas fixture suspended from the ceiling. Several cases of such carelessness were investigated by the coroner's office during 1916. At inquests it is frequently desirable to distinguish between poisoning by coal gas, illuminating gas, or other source. At the present time there are no good analytic methods by which we can distinguish illuminating-gas poisoning from that due to coal fumes. Wachholz[18] has suggested that the presence of hydrocyanic acid in the blood, and Cruz[19] that the presence of hydrocarbons in the blood gases would identify the source of the carbon monoxid as being illuminating gas. An investigation of the room for the source of the carbon monoxid will give more definite results than a chemical examination of the blood gases.

In one case investigated, a medical student had been overcome by carbon monoxid from a smoking oil-stove on which he was cooking his meals. The room, free from gas fixtures, was covered with soot. In three different instances a closed stovepipe damper caused the coal-gas fumes to enter the room and produce death by carbon monoxid gas.

Two or more persons may be exposed to a contaminated atmosphere; one or more may die, while the others recover.

Three young physicians in Melbourne, after playing tennis, went to bathe in a shower bath, in which the water was heated by a gas burner. Half an hour later a messenger found one dead and two unconscious.[20]

Jan. 5, 1917, three men were found unconscious in a room. One man died, the other two recovered. A stovepipe had parted from a hard coal burner, allowing the carbon monoxid to escape into the room. The blood of the man who died was 45 per cent. saturated with carbon monoxid.

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[11] Burrell and Seibert: Miners' Circular 14, Dept. of Interior, Bureau of Mines, Washington, 1914.

[12] Coullaud: Ann. d'hyg., 1909, Series 4, **12**, 490.

[13] Fishbein, Morris: Illuminating-Gas Poisoning, The Journal A. M. A., March 8, 1913, p. 737.

[14] Long and Wicki: Rev. méd. de la Suisse romande, 1902, **22**, 172.

[15] Sibelius: Ztschr. f. klin. Med., 1903, **49**, 111.

[16] O'Malley: Am. Jour. Med. Sc., 1913, **145**, 865.

[17] Olsen vs. City of Chicago, Decision on Review, Vol. 697, Book 2, Case 262, April 30, 1914.

[18] Wachholz: Ztschr. f. med. Beamte, 1896, **9**, 400.

[19] Cruz: Ann. d'hyg., 1898, Series 3, **39**, 385.

[20] Lancet, London, 1911, p. 1102.

The time required to completely eliminate carbon monoxid by respirations of pure air has not been determined definitely. It varies greatly with different patients, the carbon monoxid hemoglobin apparently not being in all cases under sufficient tension with oxygen to readily liberate the carbon monoxid. Henderson[21] states that carbon monoxid is practically eliminated in three or four hours. The experiments of Michel[22] tend to show that it does not exceed a few hours; Koch[23] states that he has found it after ten hours; Pouchet[24] after sixty hours; Fishbein[13] after five days; Wachholz[25] after seven days. In specimens of blood submitted to me from two cases ending fatally in two days, and one of four days' duration, I was able to detect carbon monoxid hemoglobin. I have had over 100 cases of over four hours' standing, in which I could detect carbon monoxid by definite color tests and the palladious chlorid method. In a large number of my cases of gas poisoning, with clear histories of attempted or consummated suicide by means of illuminating gas, the blood failed to show the presence of carbon monoxid after the respiration of pure air and oxygen for a few hours. Blood from suicides who died within a half hour after being discovered in a gas-filled room contained as high as 13.5 per cent. of carbon monoxid by volume. Blood from other cases in which life was prolonged for a couple of hours contained from traces to 5.5 per cent. carbon monoxid.

The compound of carbon monoxid hemoglobin can be dissociated by hydrogen and carbon dioxid as well as with oxygen. Gaglio[26] demonstrated that carbon monoxid inhaled by an animal may be recovered from the expired air with a loss of only 2.8 per cent., due to experimental conditions. The odor of illuminating gas has frequently been noticed in the expired air of patients after being taken to a hospital. Nicloux states that he has found carbon monoxid in normal blood of dogs and in human blood. The amount found in the blood gases of dogs living in Paris varied from 0.08 to 0.18 per cent. Using the method of Fodor, I have failed to find carbon monoxid in the blood of dogs and in normal human blood. Buckmaster and Gardner[27] failed to find carbon monoxid in the blood gases of cats.

For the symptoms and pathology of carbon monoxid poisoning the reader is referred to an article by Dr. W. Gilman Thompson,[28] and an article by Dr. G. L. Apfelbach.[29]

TESTS FOR CARBON MONOXID

Carbon monoxid may be detected in the air through the absorbent power of a solution of cuprous chlorid in an excess of hydrochloric acid or an excess of ammonia.[30] With an active solution of cuprous chlorid with large amounts of carbon monoxid, from 20 to 40 per cent., the residual gas after passing through the cuprous chlorid will contain only 0.03 to 0.10 per cent. carbon monoxid.[31] Birds and mice have been used for the detection of carbon monoxid in the air of mines. With 0.2 per cent. carbon monoxid, a mouse collapsed in fifteen minutes. At the end of an hour it had lost all muscular power. It died in two hours. Canaries are more sensitive to carbon monoxid, 0.2 per cent causing distress in one and a half minutes, and they will fall from the perch in five minutes.[32]

Air may be drawn through a bottle containing iron wire gauze moistened with ammoniacal water, then through a Liebig bulb containing 10 c.c. of diluted blood (1:200). The blood may be examined by means of the spectroscope or the tannic acid reaction, Hempel being able to detect 0.06 per cent. carbon monoxid by aspirating large volumes of air through the diluted blood. Paper moistened with a 2:1,000 neutral solution of palladious chlorid, hung in a 10 liter bottle of air, will blacken if the air contains as small an amount as 0.05 part of carbon monoxid in 1,000 parts of air. The paper is also blackened by hydrogen sulphid, ozone and sulphurous acid.

Carbon monoxid hemoglobin imparts to blood a characteristic pink color, even when only a small proportion of the gas is present. Five-tenths c.c. of the unknown sample of blood and a like amount of the normal blood are diluted to 100 c.c. in a cylinder. The normal blood will have a buff yellow tint and the sample, if it contains carbon monoxid, will have a pink color. In testing for carbon monoxid in a contaminated atmosphere, a tube or cylinder containing the diluted normal blood is taken to the place where the air is to be examined. The normal blood is poured out into another tube, so that the air takes the place of the blood. The normal blood is then added to the tube, corked and shaken for about ten minutes. If the air contains carbon monoxid, a distinct pink color of the carbon monoxid hemoglobin will be noticed when the comparison is made with the original buff colored blood.

A large number of tests have been suggested for the detection of carbon monoxid hemoglobin, all of which take a number of hours before a positive result can be reported. If the blood is more than 27 per cent. saturated with carbon monoxid, the spectroscopic examination will readily show the carbon monoxid hemoglobin. If less than 5 per cent. of the coloring matter is saturated, all of the color tests will fail. For the rapid detection and estimation of carbon monoxid in the blood I have found Fodor's method to be the best. In the routine examination of blood for gas poisoning I have found the dilution test, the boiling test, the sodium hydroxid test, the basic lead acetate test, the spectroscopic examination, the palladious chlorid test, the ferrocyanid test, and the tannic acid test the most reliable. If positive results are obtained with the tannic acid, basic lead acetate, and palladious chlorid tests, all other tests can be considered superfluous.

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[21] Henderson, Yandell: Carbon Monoxid Poisoning, The Journal A. M. A., Aug. 19, 1916, p. 580.

[22] Michel: Vrtljschr. f. gerichtl. Med., 1897, **14**, 36.

[23] Koch: Diss., Greifswald, 1892.

[24] Pouchet: Ann. d'hyg., 1888, **30**, 361.

[25] Wachholz: Vrtljschr. f. gerichtl. Med., **23**, 231.

[26] Gaglio: Arch. f. exper. Path. u. Pharmakol., 1887, **22**, 235.

[27] Buckmaster and Gardner: Jour. Physiol., 1910, **41**, 60, 246; Proc. Roy. Soc., 1909, **81**, 516.

[28] Thompson, W. G.: A Clinical Study of Ninety Cases of Illuminating Gas Poisoning, Med. Rec., New York, 1904, **66**, 41.

[29] Apfelbach, G. L., quoted by Kober and Hanson: Diseases of Occupation and Vocational Hygiene, 1916.

[30] Hempel: Methods of Gas Analysis, English translation of third German edition by Dennis, 1910, p. 206.

[31] Burrell and Seibert: Bulletin 42, Bureau of Mines, Washington, D. C., 1913, p. 48.

[32] Burrell: Technical Paper 11, Bureau of Mines, Washington, D. C., 1912. Burrell, Seibert and Rohertson: Technical Paper 62, Bureau of Mines, Washington, D. C., 1914, p. 12.

Spectroscopic Test.—In the examination of carbon monoxid hemoglobin spectroscopically, I use a 1 per cent. solution of the blood in a small cell of 1 cm. inside diameter holding 0.5 c.c., mounted on an ordinary microscopic slide. With a Zeiss microspectroscope, a comparison with normal blood of the same dilution can be made simultaneously. Carbon monoxid hemoglobin shows a characteristic absorption spectrum closely resembling that of oxyhemoglobin, having two absorption bands between the D and E lines. When the blood is more than 27 per cent. saturated by carbon monoxid, the addition of a reducing agent, as Stokes' reagent or a solution of ammonium sulphid, does not convert the spectrum into one of reduced hemoglobin, which is a single band beginning at the D line and occupying a little more than half the space to the E line.[33]

Boiling Test.—Blood containing carbon monoxid gives a brick-red coagulum, if boiled. Ordinary blood gives a brownish black precipitate.

The Sodium Hydroxid Test of Hoppe-Seyler.—This is made by mixing blood in a porcelain dish with an equal volume of sodium hydroxid solution (of specific gravity 1.3) when normal blood forms a black, slimy mass, which appears greenish brown in thin layers, while carbon monoxid blood forms a red coagulum.

Tannic Acid Test.—The tannic acid test of Wetzel is one of the easiest and most delicate of the color tests. The blood, diluted one part by volume to four of water, is shaken with an equal volume of a 1 per cent. tannic acid solution (the original method calls for three times the volume of tannic acid solution, but I prefer an equal volume). Normal blood becomes gray in twenty-four hours, in the presence of carbon monoxid, a carmin red. The results are marked and the color distinction easy. The difference persists and becomes more marked with increasing time. The red precipitate holds its color for months. One specimen in my laboratory still retains the carmin color after four years. One per cent. of carbon monoxid (5 per cent. saturated) can be detected in blood with the tannic acid test. In an exhumed body which had been embalmed for thirty days, I was able to demonstrate the presence of carbon monoxid hemoglobin by the tannic acid and palladious chlorid methods.

Basic Lead Acetate Test.—In the basic lead acetate of Rubner, four volumes of basic lead acetate are added to one volume of carbon monoxid blood, and shaken for about one minute. Carbon monoxid gives a fine red color; normal blood gives a brownish color changing to a brownish-gray. The difference increases on standing; the red is still noticeable after many months. Formaldehyd used in embalming fluids interferes with this test, giving a whitish coagulum (Fishbein).

Potassium Ferrocyanid Test.—When 10 c.c. of blood are mixed with 15 c.c. of a 20 per cent. potassium ferrocyanid solution and 2 c.c. of a 30 per cent. acetic acid, a solid coagulum gradually results; if normal, the coagulum is dark brown to black, but when the blood contains carbon monoxid, a bright red will be obtained (Wetzel).

Haldane's[34] *Quantitative Method.*—For the carbon monoxid, this yields satisfactory results with fresh blood; but with dark colored blood from cadavers, the colors are hard to match with a Duboscq colorimeter, the results obtained being far too high compared with the palladious chlorid method.

For the quantitative estimation of carbon monoxid in air and in blood, the method of Nicloux[35] or that of Fodor[36] is preferred to that of Haldane, especially with blood from cadavers which may not be of a bright cherry red. The method of Nicloux is based on the reaction of the oxidation of carbon monoxid by iodic acid and the determination of the liberated iodin with a standard solution of thiosulphate. In a form of apparatus devised by Seidell,[37] the carbon dioxid liberated may also be determined. The reaction may be expressed by the equation: $I_2O_5+5CO=5CO_2+I_2$.

The method of Fodor, based on the reduction of palladious chlorid by carbon monoxid, is much better for the examination of carbon monoxid in blood. The reaction is expressed by the equation: $PdCl_2+CO=Pd+2HCl+CO_2$. For the examination of the blood, 5 c.c. are diluted with 20 c.c. of water in a large test tube of 80 c.c. capacity; a small piece of sodium hydroxid is then added to aid in the expulsion of carbon monoxid. A tube containing 10 c.c. of palladious chlorid precedes the tube containing the blood to remove the carbon monoxid from the laboratory air. A third U tube following the tube containing the blood contains a solution of lead acetate, and a fourth tube contains dilute sulphuric acid. The chain of tubes is completed by the addition of three U tubes containing a solution of palladious chlorid.[38] The test tube containing the blood is heated in a water bath to 90 C., while a gentle current of air, previously drawn through the tube of palladious chlorid, is conducted through the chain of tubes at the rate of 300 c.c. per hour for four hours. If carbon monoxid is present, the palladious chlorid is reduced, and a black precipitate of palladium will be deposited. The reduced palladium is collected on a filter paper, washed with water and dissolved in hot nitrohydrochloric acid. The U tubes after washing with water will have a small amount of palladium adhering to the sides. This can be dissolved in the hot nitrohydrochloric acid and added to that dissolved from the filter paper. The solution is evaporated on the hot water bath, taken up with strong hydrochloric acid three or four times to remove all traces of nitric acid. The residue is dissolved in water and titrated with a solution of potassium iodid containing 1.486 gm. to the liter. The diluted palladium chlorid solution is heated on the water bath before each addition of the potassium iodid solution. A brown precipitate of palladious iodid is filtered off and the operation is repeated until the addition of potassium iodid fails to produce a brown cloudiness. Each cubic centimeter of the potassium iodid solution represents 0.1 c.c. of carbon monoxid. In case the blood contains only a small amount of carbon monoxid, as is demonstrated by the tannic acid and other color tests, 20 c.c. of the blood are used in a small Erlenmeyer flask. When it is desired to report the saturation of the blood after obtaining the percentage of carbon monoxid by volume, one can use the relation x:20, since a saturated blood will hold in combination 20 per cent. by volume of carbon monoxid.

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[33] For a more extended description of the spectroscopic examination and color plates, see Peterson and Haines' text, Legal Medicine and Toxicology, 1904, **11**, 658.

[34] Haldane: Jour. Physiol., 1895, **18**, 430, 463; 1896, **20**, 521.

[35] Nicloux: Compt. rend. Acad. d. sc., 1898, **126**, 746.

[36] Fodor: Deutsch. Vrtljschr. f. off. Gesundhtspfl., 1880, **12**, 377.

[37] Seidell: Jour. Indust. and Engin. Chem., 1914, **4**, 321.

[38] The commercial salt is dissolved in hydrochloric acid, with the addition of nitric acid, evaporated to dryness on the waterbath, moistened with hydrochloric acid, dried, taken up with a small amount of water and again dried to free it from excess acid. The residue is then made up to volume so that 500 c.c. will contain 1 gm.

Helping the Crippled Soldier to Select an Occupation.—A great aid in helping a soldier to decide about his future is acquaintance with the records of other men with similar physical handicaps who have made good—men who have been trained and who are now holding jobs at attractive wages. In addition, such practical results lend plausibility to the expectations in prospect which are being held out to him. A difficulty, however, is found in the abnormal premium on industrial labor in war time. Even a disabled man may be able to go out and earn seven dollars a day in a munition factory. This constitutes a very potent present counter attraction to representations of moderate but permanent employment after a course of training. If he makes the opportunist choice he will, on the return of employment conditions to normal, be reduced to the status of a casual laborer, perilously near the verge of mendicancy. No pains should be spared to prevent this eventuality. Care should be taken that the representations to the man while encouraging, should in the main be accurate. Workers with the crippled soldiers should not be misled by reports of extraordinary success in isolated cases. The men will, sooner or later, learn the truth, which will tend to discredit the veracity of the vocational officials.—Douglas C. McMurtrie: The War Cripple, Columbia War Papers.

CARCINOMA OF PROSTATE

AN IMPROVED TECHNIC FOR RADICAL EXCISION WITH PRESERVATION OF URINARY CONTROL *

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BALTIMORE

In 1905, I presented a radical operation[1] for the cure of cancer of the prostate, and showed by an exhaustive study of a large number of clinical cases that the disease was far more common than usually supposed. At that time sixty-eight cases of carcinoma had been encountered in five years, during which time 250 cases of benign hypertrophy were seen, making 21 per cent. of carcinoma. Since then, there have been numerous confirmatory publications. The statistics of Oliver Smith give a proportion of 16 per cent.; of Davis, 20 per cent.; of Kummell, 20 per cent.; Pauchet, 20 per cent., and Mullin, 25 per cent. Wilson and McGrath, studying 469 specimens removed by prostatectomy at the Mayo Clinic, found that 15.5 per cent. were cancerous. These confirmatory statistics show that cancer of the prostate is a very common disease, and that it presents a serious problem to the surgeon, especially as the importance of early diagnosis and radical excision has been conclusively demonstrated.

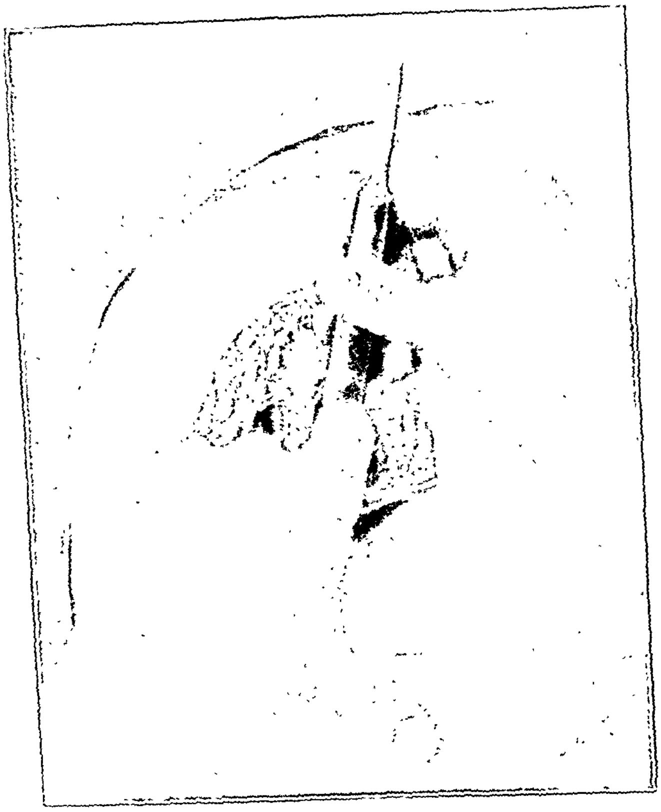

Fig. 2.—Opening up the space on each side of the central tendon by blunt dissection.

My reports of cases in which I had carried out my radical operations showed conclusively that radical cures may be obtained; but the fact that all of these patients *suffered* with incontinence during the day caused many surgeons to oppose the operation. Thus Judd, in 1913, said that he considered the incontinence an insuperable objection to the operation. During the past three years, I have greatly improved the technic of the operation, so that *now* it can be carried out without producing incontinence, thus removing the only possible objection to the procedure, which, in my opinion, is indeed a radical curative operation of great value.

The patient is placed in the exaggerated lithotomy position on the Halsted perineal board or some table giving an equally good position (and there are few that do), the penis injected with 5 per cent. argyrol for antiseptic purposes, and a No. 24 sound passed as far as the anterior portion of the prostatic urethra. The perineum is then cleaned up with tincture of iodin, towels are placed, and an inverted V perineal incision made, as in the operation for simple hypertrophy of the prostate, but a little longer on each side, as shown in Figure 1.

After the incision has been carried through the fat and subcutaneous fascia, the space on each side of the central tendon, bounded anteriorly by the transversus perinei muscle, posteriorly by the levator ani, and externally by the ischiopubic ramus, is opened up by blunt dissection, as shown by Figure 2. The bifid tractor is then introduced, and after division of the central tendon (Fig. 3) and the recto-urethralis muscle close to the bulb, the membranous urethra is exposed, incised longitudinally on the sound, and the edges of the mucous membrane picked up with non-crushing clamps, as shown in Figure 4. The prostatic tractor, Figure 5, is then introduced[2] and opened out ready to draw the prostate down into the wound. The next procedure is to divide the posterior layer of Denonvillier's fascia at the apex of the prostate on each side, thus exposing the anterior layer of Denonvillier's fascia, which forms the posterior cover-

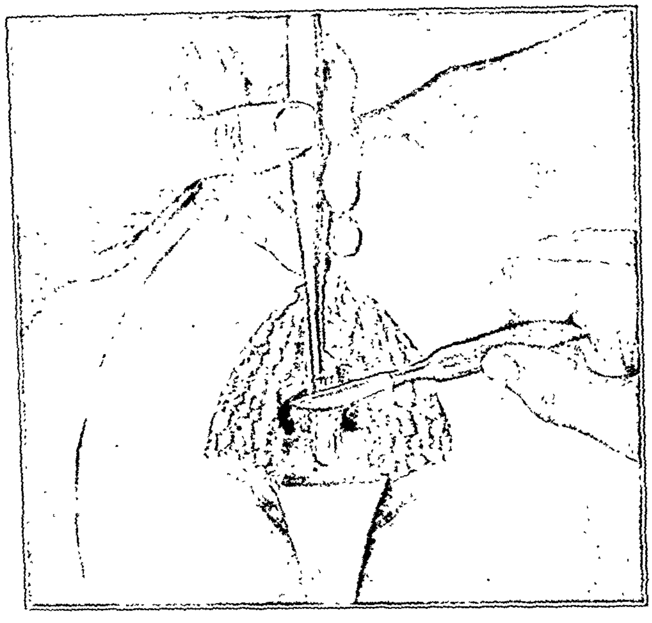

Fig. 3.—Bifid retractor inserted; division of central tendon.

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* From the James Buchanan Brady Urological Institute, the Johns Hopkins Hospital.

* Owing to lack of space this article has been abbreviated in The Journal by omission of some of the illustrations. The complete article appears in the author's reprints.

[1] Described first in the Johns Hopkins Hospital Bulletin, 1905.

[2] Many incorrect models, much too rectangular and difficult to introduce, are on the market. The approved models, such as are shown in Figure 20, present a more tapering point, the bend is not so square and they are very easy to introduce, thus doing away with the necessity of the many modifications which have been devised.

ing of the prostate and seminal vesicles, and undoubtedly has much to do with the prevention of carcinoma of the prostate and seminal vesicles from traveling backward toward the rectum and adjacent structures. Passing upward between these two layers of Denonvillier's fascia, the posterior surface of the prostate and seminal vesicles is freed, after which the lateral surfaces of the prostate are exposed by blunt dissection, the operator taking care to keep within the anterolateral prostatic fascia, separating it from the prostate. The great plexus of blood vessels, and the important nerves of the perineum lie in front of this fascia so that by stripping it up from the prostate, it is easy to avoid hemorrhage and not only preserve the vascular supply, but also the perineal nerves, including that of the external sphincter. The modification of my operation which I have adopted during the past three years, and which has done away with incontinence, consists in respecting this anterolateral fascia, and passing between it and the lateral and anterior aspect of the prostate, as indicated by the dotted line in Figure 6.

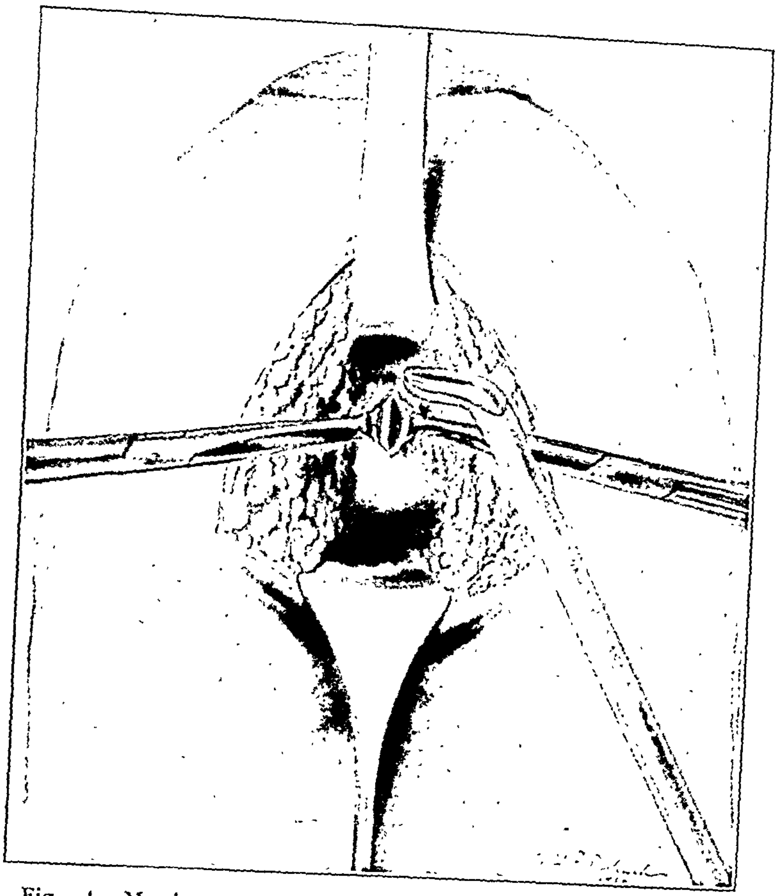

Fig. 4.—Membranous urethra exposed, incised longitudinally on sound, and edges picked up with *noncrushing* mucosa clamps; prostatic tractor ready for insertion.

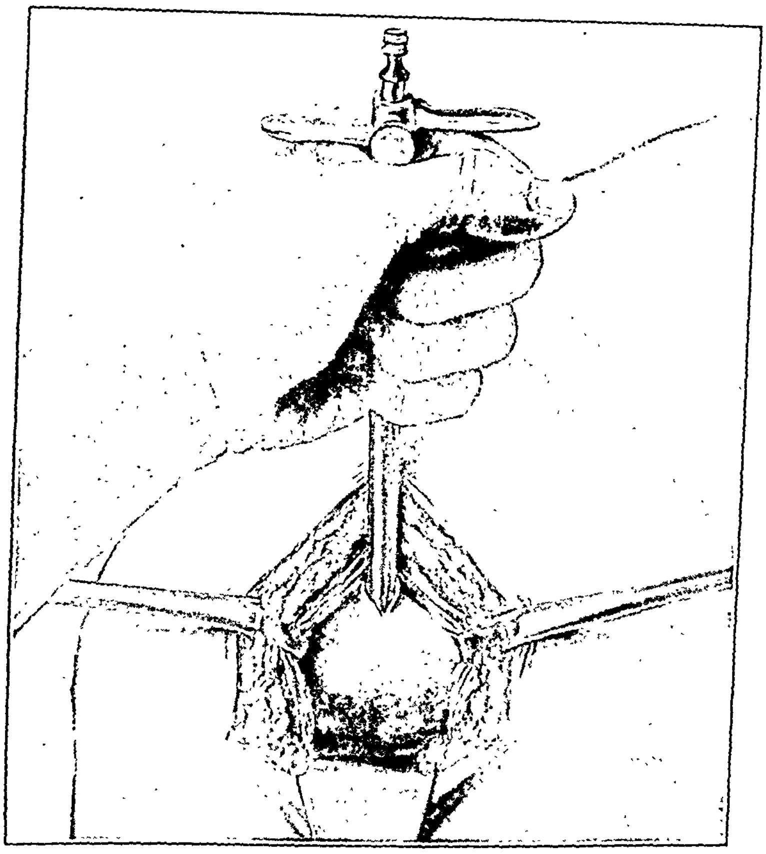

Fig. 5.—Tractor has been inserted and opened; posterior surface of prostate exposed showing anterior layer of fascia of Denonvillier.

After this fascia has been freed by blunt and sharp dissection on each side, the next step is to divide the membranous urethra just in front of the prostatic tractor, as shown in Figure 7, the operator again being careful to keep beneath the anterolateral prostatic fascia, which is readily stripped up, exposing the anterior surface of the prostate until the prostatovesical juncture is reached, as shown in Figure 8. During this procedure the prostate, freed laterally, posteriorly and anteriorly, is gradually drawn outward, bringing the bladder well down toward the operator, who then plunges a scalpel through the bladder wall close to the upper limit of the prostate and enlarges the opening into the bladder by scissors on each side, thus exposing the interior of the bladder, and particularly the trigon, as shown in Figures 8, 9 and 10. The dotted line here indicates the next step, namely, the curved incision across the trigon, which passes about 1 cm. below the ureteral orifices on each side and includes the mucosa, submucosa and muscle (Fig. 11). The bladder is then pushed upward, as shown in Figure 12, thus exposing the tissues covering the anterior surfaces of the seminal vesicles and vasa

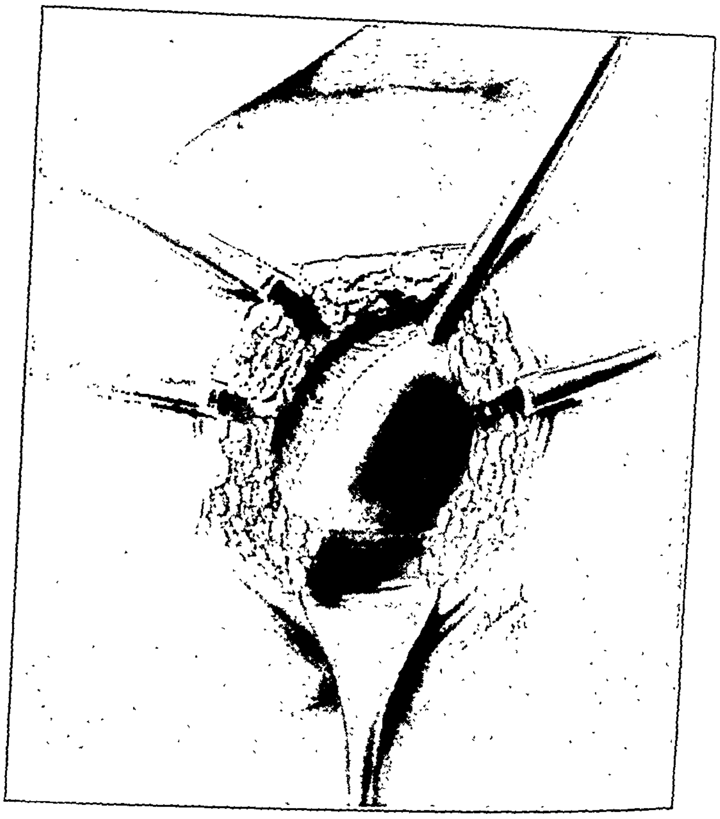

Fig. 6.—Dotted line shows where dissection should proceed in order that the operator keep between the anterolateral fascia and lateral aspect of prostate.

deferentia, which become more and more exposed as the blunt dissection proceeds (Fig. 13). The operator avoids going too close to the seminal vesicles and vasa deferentia, freeing these structures *en masse*, and ligating the fascia containing the blood supply at the upper end of the seminal vesicles on each side, as far distant above the prostate as possible. The vas deferens is then isolated, freed well above the tip of the seminal vesicle, drawn down, clamped and divided. The same procedure is repeated on the other side, thus freeing the carcinomatous mass, which is removed in one piece, composed of the entire prostate with its capsule, and urethra, a small portion of the membranous urethra, a cuff of the bladder, including most of the trigon, both seminal vesicles and 6 or 7 cm. of the vasa deferentia, with intervening and surrounding tissues. The mass removed is shown in Figures 21, 22 and 23, which are taken from the actual operative specimens.

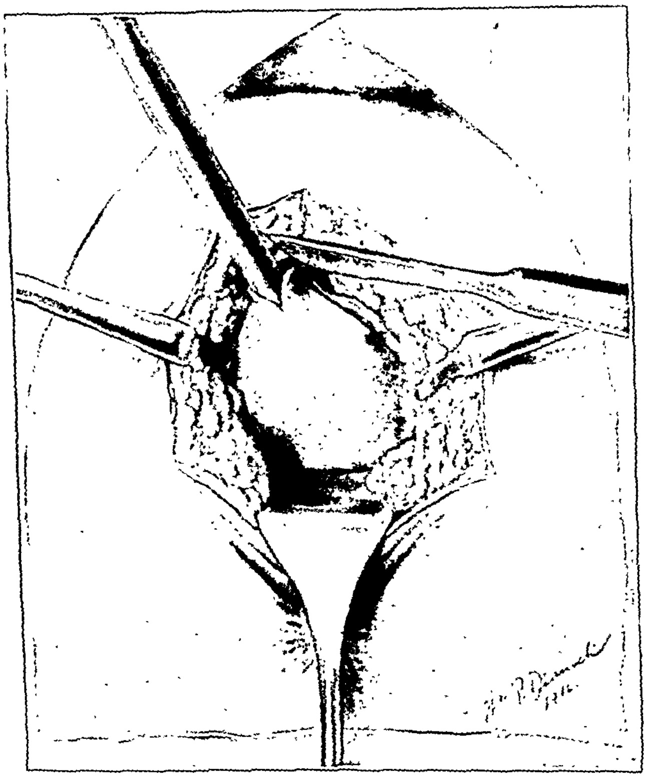

Fig. 7.—Division of membranous urethra.

The problem next confronting the operator is to draw down the bladder and form an anastomosis between it and the stump of the membranous urethra at the triangular ligament. The vesical opening is usually about 3 inches in diameter, and about 3 inches distant from the urethra to which the bladder is to be sutured; but by grasping the anterior wall and drawing it downward, no difficulty is experienced in performing the anastomosis, as shown in Figure 14. The sutures are interrupted and of chromic catgut tied externally and including both mucous membrane and muscle. As a rule, about ten such stitches are required, but no difficulty is experienced in obtaining an excellent anastomosis around the small retained urethral catheter, as shown in Figure 15. There remains then a longitudinal opening in the bladder which is easily closed by continuous chromic catgut suture, as shown in Figures 16 and 17. In performing the anastomosis, I have recently used my new boomerang needle holder (Fig. 24), and have found it very efficient, particularly for deep work. The rest of the operation consists in placing a small iodoform gauze drain behind the line of sutures, drawing the levator muscles together with chromic catgut (Fig. 18), and closing the skin with a continuous subcuticular chromic catgut suture, as shown in Fig. 19. The catheter is fastened to the glans penis with adhe-

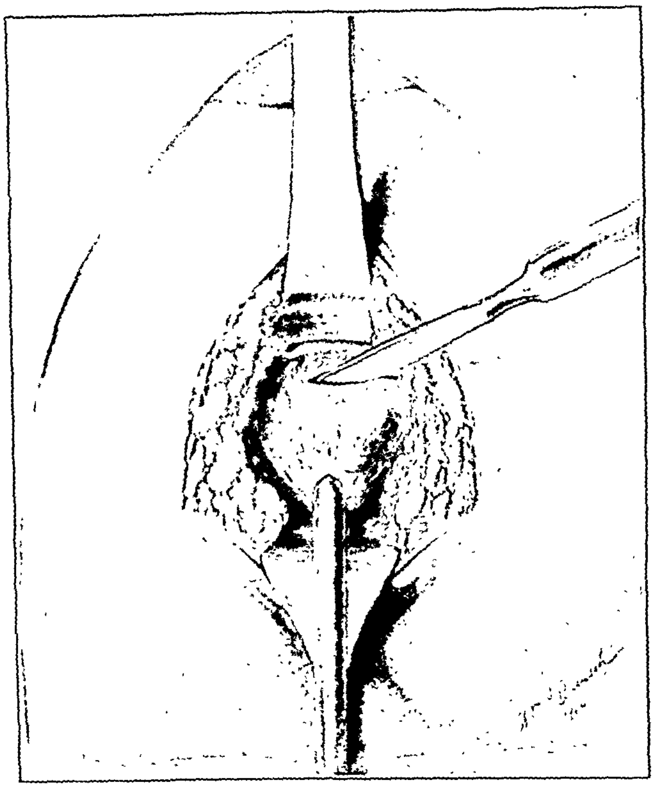

Fig. 8.—Entire prostate turned down and the bladder wall incised transversely just above upper limits of the prostate.

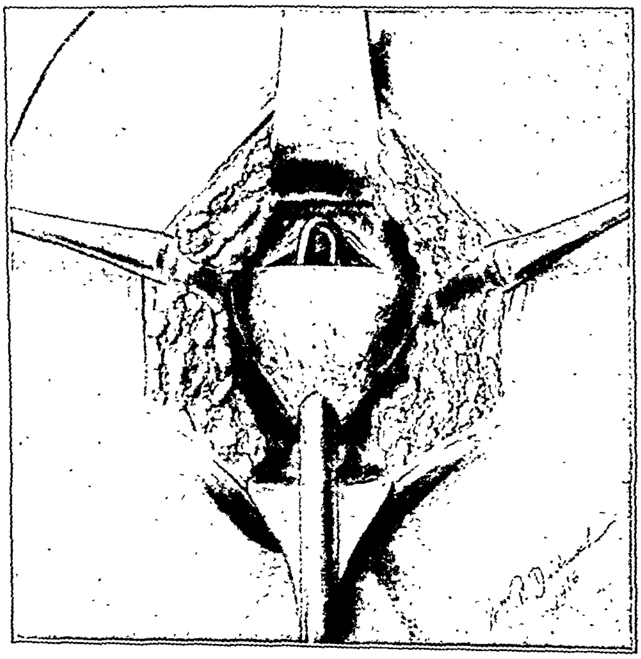

Fig. 9.—Blade of tractor protruding through incision in bladder wall.

sive plaster and a subcutaneous infusion given at the end of the operation (before if advisable). By preserving the anterolateral prostatic fascia, and thus avoiding hemorrhage from the plexus of Santorini, and by carefully clamping and ligating bleeding points when the bladder is divided and the seminal vesicles freed from deep adhesions, pronounced hemorrhage is avoided, and the operation is practically free from danger and is not exceedingly difficult.

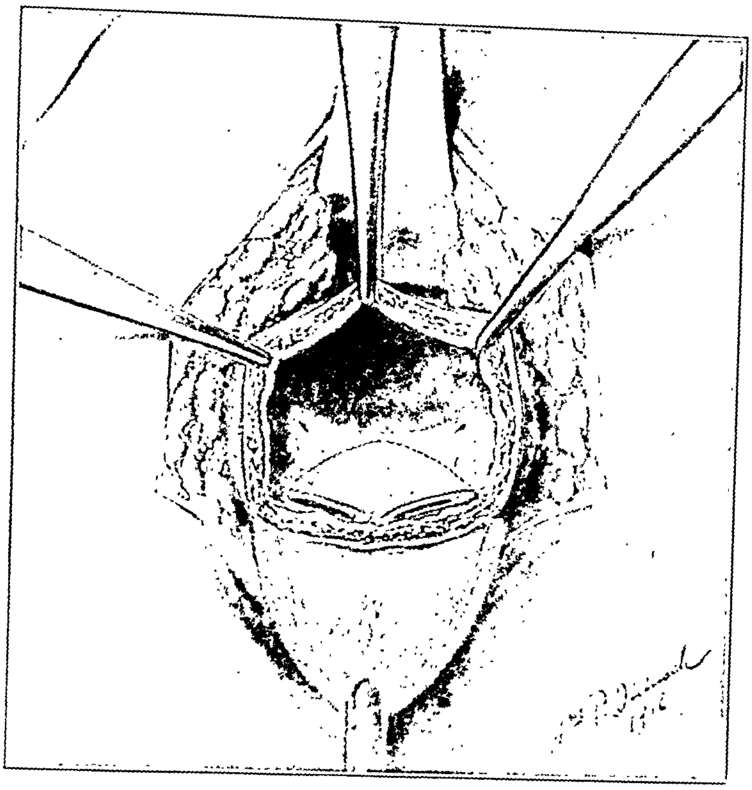

Fig. 10.—Bladder incision enlarged: Dotted line indicates course of completed incision, passing across trigon about 1 cm. in front of ureteral orifices.

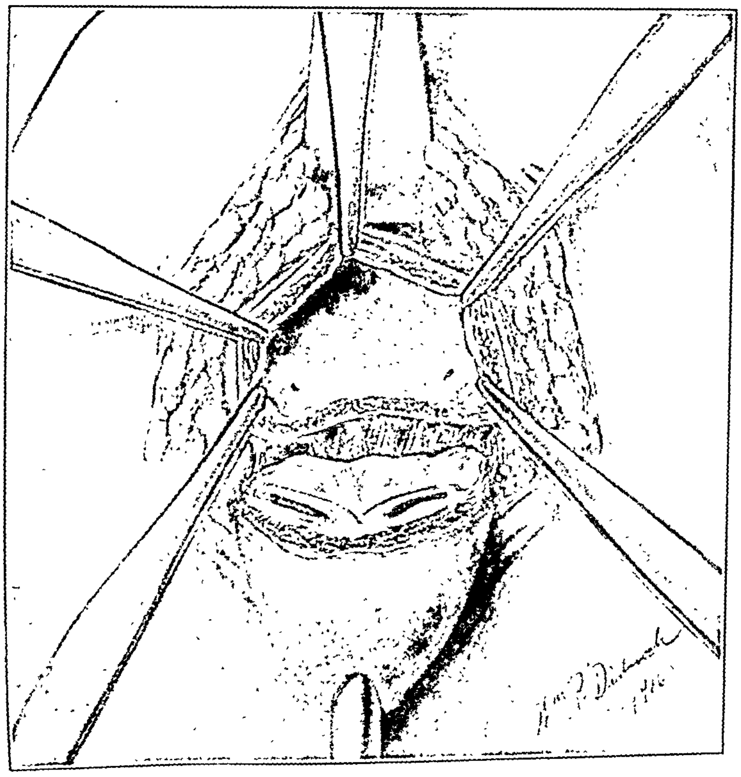

Fig. 11.—Incision in bladder wall completed, the prostate now being attached only by the seminal vesicles and vasa.

AFTER-TREATMENT

The treatment during the convalescence is very similar to that employed after perineal prostatectomy, namely, water in abundance, subcutaneously if necessary, hexamethylenamin, and daily irrigation of the bladder with small amounts of boric acid solution through the retained urethral catheter, which is allowed to remain in place eight or nine days. The gauze packs are removed in two or three days, and no further packing is introduced. In nearly all cases there is leakage for a week or so, but in almost all cases the wound heals completely within the course of a month, and no cases of permanent urinary fistulas have resulted.

My experience in thirteen cases shows that it is not necessary or even advisable to pass sounds or other urethral instruments, as stricture does not occur at the point of anastomosis, and dilations are therefore unnecessary.

RESULTS

In the first eight cases there was incontinence when the patient was on his feet, and more or less constant dribbling; but when the patient was in a recumbent posture, and particularly when in bed, there was usually no incontinence and the bed was not wet, interval urination of fairly normal character occurring at this time. One patient died of shock immediately after the operation. In the last four cases in which the perfected technic described in the foregoing was carried out, incontinence has not been present, and some of these patients are able to retain urine as long as six or seven hours, they void freely without difficulty, have excellent sphincteric control, and have practically normal urination. One patient, operated on over three years ago, is able to sleep all night undisturbed, and voids large amounts of urine at infrequent intervals and in a normal manner. The other cases are more recent, but give evidence of just as satisfactory results.

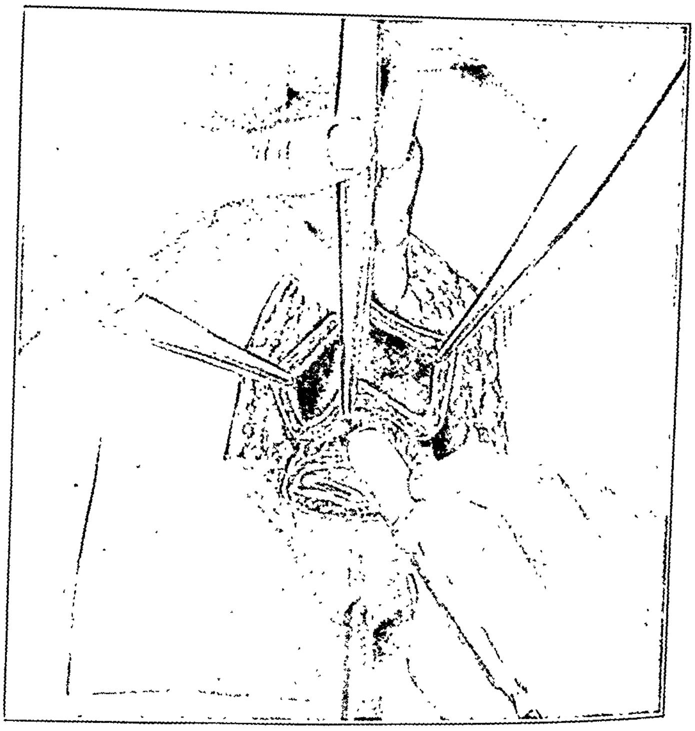

Fig. 12.—Freeing vesicles and vasa surrounding tissues from posterior aspect of bladder wall.

Success in obtaining urinary control after this extensive radical procedure is undoubtedly due to the new scheme of carefully preserving the anterolateral prostatic fascia, and thus avoiding injury of the nerve and blood vessels which lie in front of it and which supply the triangular ligament and external sphincter with vascularity and innervation.

Nevertheless, it is interesting to note that normal micturition can exist even when the entire prostate, with the prostatic urethra, membranous urethra and almost all of the trigon and cuff of the bladder are removed, and the defect restored by plastic anastomosis between the bladder and the stump of the membranous urethra. It is also interesting to note that the external sphincter is able to functionate sufficiently to prevent incontinence, even when the other sphincteric structures of the prostate and bladder have been removed.

At the operation, the lower ends of both ureters were intentionally excised for a short distance in Case 2, the operator thinking that the disease had reached this point. This was a mistake, as it was found afterward that the induration was inflammatory in character. In Case 5 the lower end of the left ureter was involved, and had to be excised. This patient died of shock, and necropsy revealed that, while the seminal vesicles were free, the disease had traveled into the peritoneal cavity. The cystoscopic evidence of elevation of the whole trigon should evidently militate against the radical operation, as shown by this case. In Case 3, the lower end of the left ureter was unintentionally divided with scissors when the division along the left lateral wall of the bladder was made. Anastomosis was made high up, and no inconvenience resulted. (The patient lived three years). In nine cases, the operation was carried out with apparent success and without shock, but a study of the specimen removed showed carcinoma near the upper limit in two patients (Cases 1 and 3).

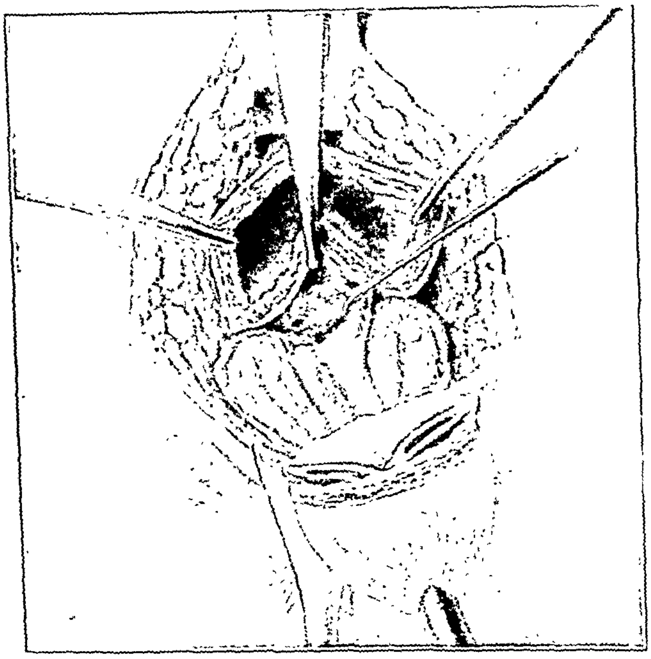

Fig. 13.—Freeing of upper limit of seminal vesicles; vascular adhesions in this region have been clamped and ligated; division of vas.

In Case 2, the patient died nine months after the operation as a result of traumatism and infection, caused by an attempt to remove a stone adherent to a silk suture. Necropsy revealed a very small area of recurrence, 1 cm. in diameter, back of the bladder. In Case 3, the patient lived over three years in comfort, but necropsy revealed metastases in various parts of the body, the bladder and urethra, however, being free from recurrence. In Case 1, in which the patient died six weeks after the operation from ascending renal infection, as a result of the intentional but injudicious division of the two ureters, extremely careful examination of all the pelvic tissues at necropsy, with numerous sections taken for microscopic study, failed to reveal any evidence of carci-

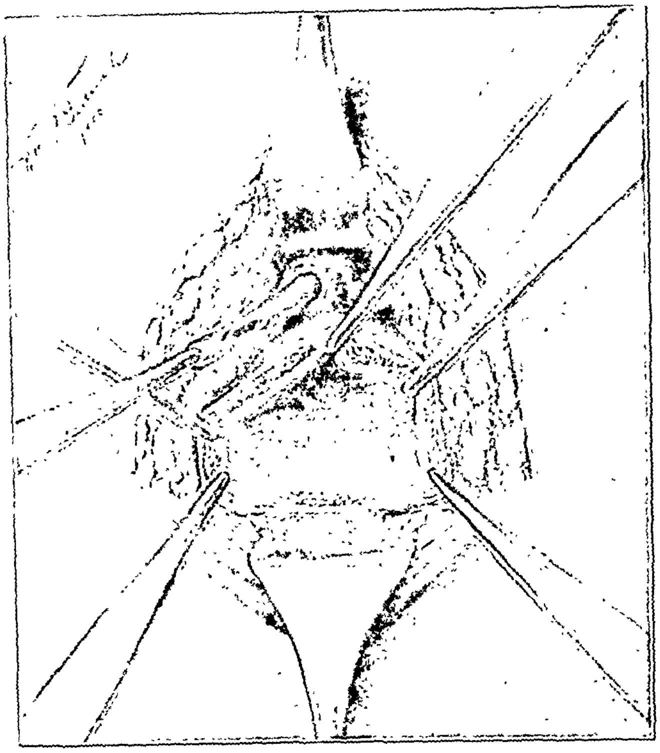

Fig. 14.—Catheter inserted in urethra preparatory to urethrovesical anastomosis.

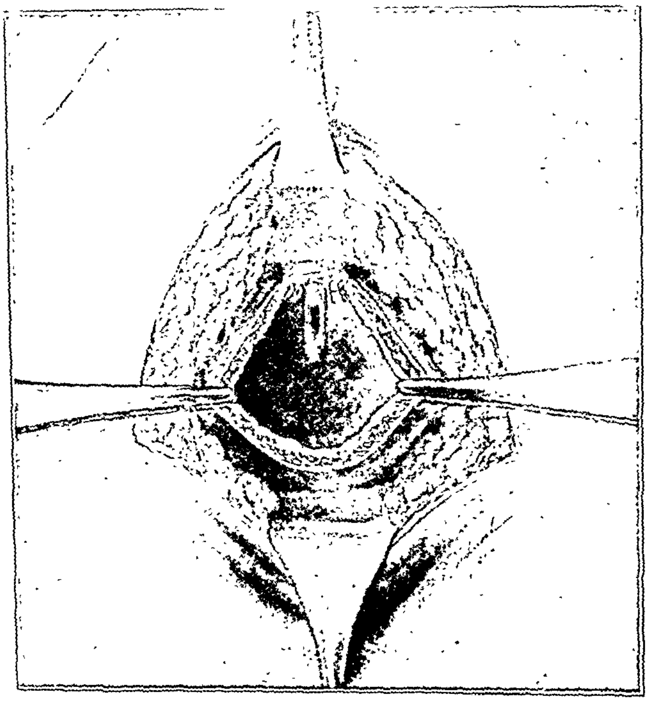

Fig. 15.—Beginning of anastomosis; sutures are of interrupted chromic catgut, tied externally.

noma, and it seems probable that the disease had been completely eradicated. Five patients have apparently been cured. One patient died from angina six and a half years after the operation, and necropsy revealed no recurrence of the cancer. Another patient is well five and a half years after the operation. In both of these cases the operative specimens disclosed that the disease had not reached the upper line of excision. Three patients operated on two and a half years ago are alive and apparently well. Two cases in which operation was performed within the past month are so recent that the ultimate result is not known, although the prospects are excellent.

In Case 2, there was incontinence when the patient was on his feet, but when in bed and in a sitting posture there was fair control. In more recent operations control has been much better; in Case 9, there was hardly any incontinence, and in Cases 10, 11 and 12, no incontinence at all occurred; the patients voided naturally with normal force, and only three or four times by day and none at night. In Case 13, the patient is still in the hospital. This improvement in the prevention of urinary incontinence has been accomplished by using great care to elevate the anterior layer of the pelvic fascia, which encloses the lateral and anterior aspects of the prostate, with the nerves and blood vessels of that region. This not only obviates hemorrhage, but preserves the vascular and nervous supply of the triangular ligament and external sphincter, and thus prevents incontinence. It removes the one objection to the operation.

As a result of the experience gained in these thirteen cases, it may be said that the operation should not be attempted when the carcinomatous infiltration extends more than a short distance beneath the trigon (as determined by the cystoscopic examination with the finger in the rectum and the cystoscope in the urethra), or when the upper portions of both seminal vesicles are involved, or in cases in which there is an extensive intervesicular mass and indurated lymphatics or glands, or when involvement of the membranous urethra or muscle of the rectum shows that the disease has manifestly progressed too far.

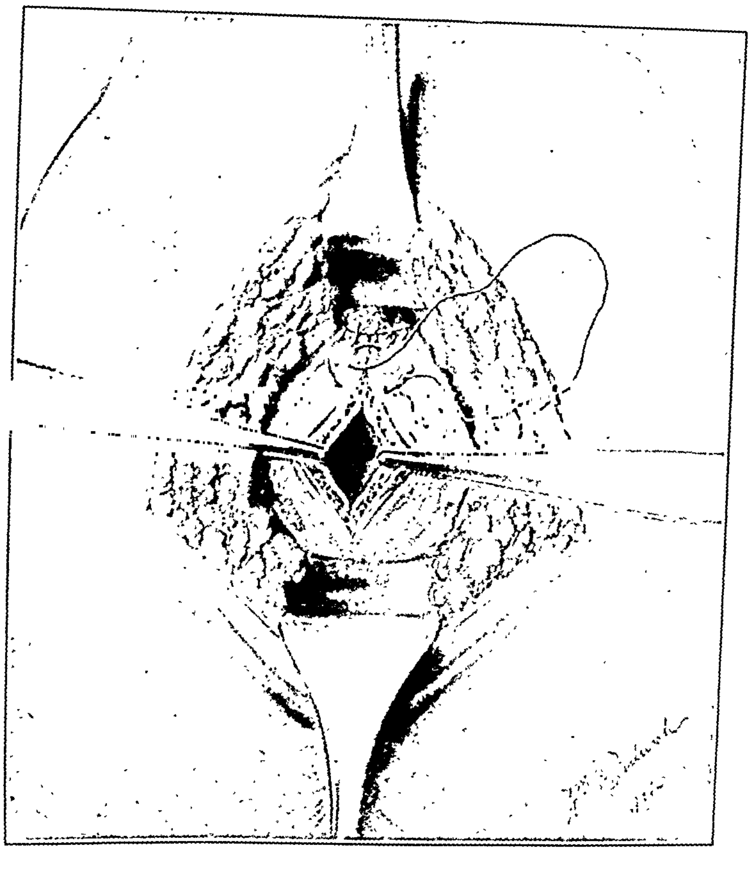
Fig. 16.—Closure of remainder of vesical incision longitudinally, with a continuous suture.

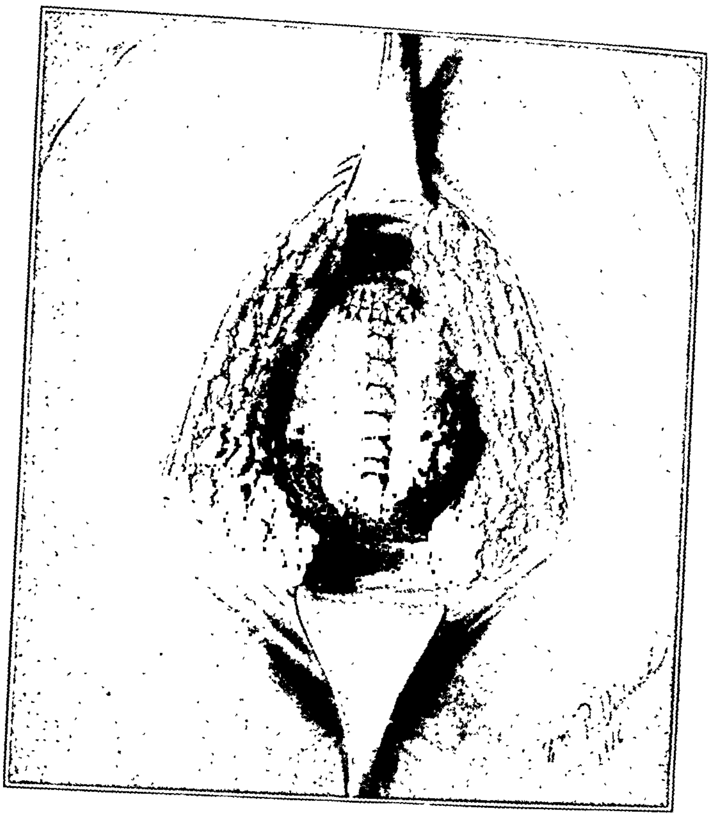
Fig. 17.—The anastomosis completed.

Further, it may be said that the corners of the trigon containing the ureteral papillae should be left intact with sufficient tissue below them to enable proper suturing and to leave their openings free from constriction, 1 cm. above the wound; that the hemorrhage should be carefully checked (by hugging the capsule, injury of the periprostatic plexus being avoided); that silk should never be used to hold the tissues together in making the urethrovesical anastomosis; that when the operation is attempted early it can be performed without much danger or great difficulty, and with excellent chance of cure; that only seven of the ten cases recorded in this paper were suitable for the radical operation, and that in all of these the disease was apparently completely removed. It seems probable that radical cures have been obtained in at least five cases. Only two with definite recurrence have been found.

Radical Cures by Partial Prostatectomies.—In two cases, in which small nodules of cancer were completely removed in the course of perineal prostatectomy for supposed benign hypertrophy, there has been radical cure for eight and fifteen years, and therefore they deserve to be mentioned.

Subtotal Radical Excision of Carcinoma.—This operation is employed with a view to the conservation of the sphincters, and most of the urethra and capsule. The operation has been carried out in six cases. The first case showed a well circumscribed area of carcinoma in the right half of the posterior capsule of the prostate. The lateral lobe lay in front of this and showed an adenomatous hypertrophy, which was also present in the left and median lobes of the prostate. The area was so well circumscribed that I did not perform the typical radical operation, but contented myself with removal of the right half of the prostate with its capsule, the right lateral wall and floor of the urethra, and the suburethral tissues with ejaculatory ducts and lower portion of the right seminal vesicle and vas deferens, all in one piece. The left lateral and median lobes were then excised as usual, the roof, left lateral wall of the urethra and vesical sphincter being preserved.

The result was splendid. The perineal fistula closed on the ninth day, and the patient was discharged on the fourteenth day. The report by letter five years later said: "entirely well, urination normal."

Four other patients have been operated on by a similar technic, also with excellent results, now four years in one case, and the method can be recommended in cases in which a small nodule of carcinoma well circumscribed and surrounded by healthy tissue is present. Great care must be exercised, however, in choosing cases, and the radical operation is generally the safer to employ.

Typical Conservative (Partial) Prostatectomy.—In seventy-five cases, this operation was done, with no idea of radical cure, but merely to remove the obstruction to urination. In two cases, however, a small nodule of carcinoma was completely excised in the removal of the lateral lobes.

In many cases (65 per cent.) the results in removing obstruction have been just as satisfactory as in benign cases, the patient generally having a good functional result as long as he lives.

Radium.—In the last two years we have used radium very effectively in cases of advanced cancer of the prostate and seminal vesicles, combining it with the use of perineal prostatectomy or the punch operation in case obstruction persisted, with some excellent functional results. Radium unquestionably has marvelous effect in reducing the carcinomatous infiltration of the prostate by the new methods which I have presented,[3] but the cases reported are as yet too recent to permit claims of absolute cures. We have, however, in radium an agent of undoubtedly great potency and value in urology.

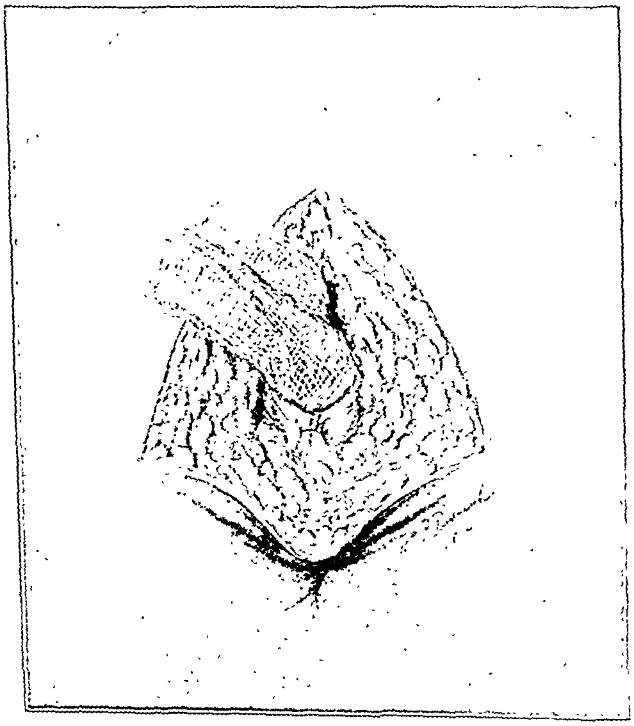

Fig. 18.—Gauze drainage passing down to site of anastomosis, one suture bringing together fibers of levator ani.

CONCLUSIONS

1. Early diagnoses are imperatively needed.
2. The radical operation is a very satisfactory surgical procedure.

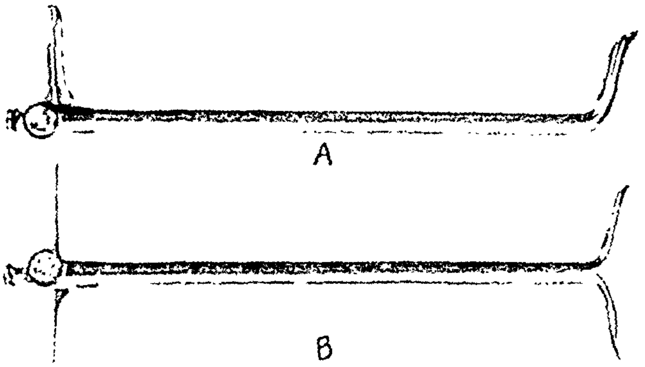

Fig. 20.—*A*, prostatic tractor closed, before insertion into membranous urethra; *B*, prostatic tractor opened after entering bladder.

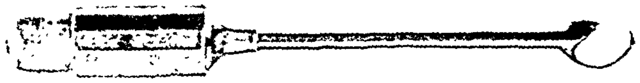

Fig. 24.—Boomerang needleholder.

3. Excellent functional results may be obtained by preserving the anterolateral prostatic fascia and the blood vessels and nerves above it, as shown in my new technic.
4. Radical cures have probably been obtained in over 60 per cent. of the cases, even though some were decidedly unpromising. Marked induration should always be suspected even when occupying only a small area, and early radical cure carried out if the disease proves to be cancer.

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[3] Young, H. H.: The Use of Radium in Cancer of the Prostate and Bladder, The Journal A. M. A., April 21, 1917, p. 1174.

Suicides in New York City.—More suicide in New York City since the outbreak of the European War in 1914, illuminating gas the most frequent method, infrequent use of firearms by women committing suicide, a decrease in the use of poison as a means of ending life, these are some of the interesting facts disclosed by a statistical study of suicides in New York City. Perhaps the one fact that stands out most prominently in the accompanying tables is the greater frequency of suicide among men than women; about three times as many men commit suicide as women. Does this indicate a greater feeling of responsibility on the part of men, a greater bravery on the part of women, bravery which enables them to bear the trials and disappointments of life with greater fortitude? Considered in conjunction with the fact that during periods of financial depression suicides are more frequent, indicating that financial reverses are the most common cause of suicide, the conclusion seems justified that the incidence of suicide is greater among males because on men usually falls the worry of financial reverses. The entrance of women into business and the professions, thus bringing them a fuller share of financial responsibility, should, if this be the chief determining factor, increase the female rate, and it will be interesting, as years go by, to note the effect of changing conditions on the incidence of suicide among females.—S. W. Wynne, M.D., *Monthly Bulletin*, New York Department of Health.

THE ETIOLOGY OF PERTHES' DISEASE

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The etiology of osteochondritis of the hip, generally known as Perthes' disease, has been the subject of much speculation ever since the condition was recognized as a clinical entity several years ago. Traumatism, obscure infection and perverted metabolism have each had their advocates. Tuberculosis has been eliminated because the joints recover with good function, and syphilis has been excluded because Wassermann reactions have been negative.

Notwithstanding the results of laboratory tests, I desire to advance the opinion that this affection of the hip, which occurs with considerable frequency in children, is the result of inherited syphilis.

In the course of an extensive study of orthopedic conditions produced by congenital syphilis, involving the treatment of about two hundred cases of various types, several well developed instances of Perthes' disease have come under observation. Two of them presented symptoms of unusual spasm and limitation of motion, one having acute pain on any attempt at passive movement. The symptoms in these two cases cleared up very rapidly under mixed treatment, and the other patients showed improvement in their general condition rather more quickly than would be expected without medication.

While the course of five or six cases under antispecific treatment proves nothing very definite, there are several arguments to be offered in favor of the syphilitic origin of these lesions. First, the negative Wassermann must be disposed of, and that is not difficult, for it is common experience that subjects with frankly syphilitic bone lesions, when a family history of syphilis exists and when the pathologic process disappears under mixed treatment, give a negative Wassermann reaction. Several cases of this kind have been observed during my recent studies. Therefore, it may be contended that a negative Wassermann reaction in Perthes' disease does not exclude syphilis. Secondly, the pathologic findings described by Perthes coincide with one of the most common expressions of bone syphilis in children, namely, osteochondritis. Although the joint lesions of congenital syphilis have been much neglected, every author who has written on syphilis of the bones and joints has referred to osteochondritis as it appears in the region of the knees, wrists and ankles. As a matter of fact, many cases of joint enlargement ascribed to rickets are nothing more nor less than syphilitic osteochondritis.

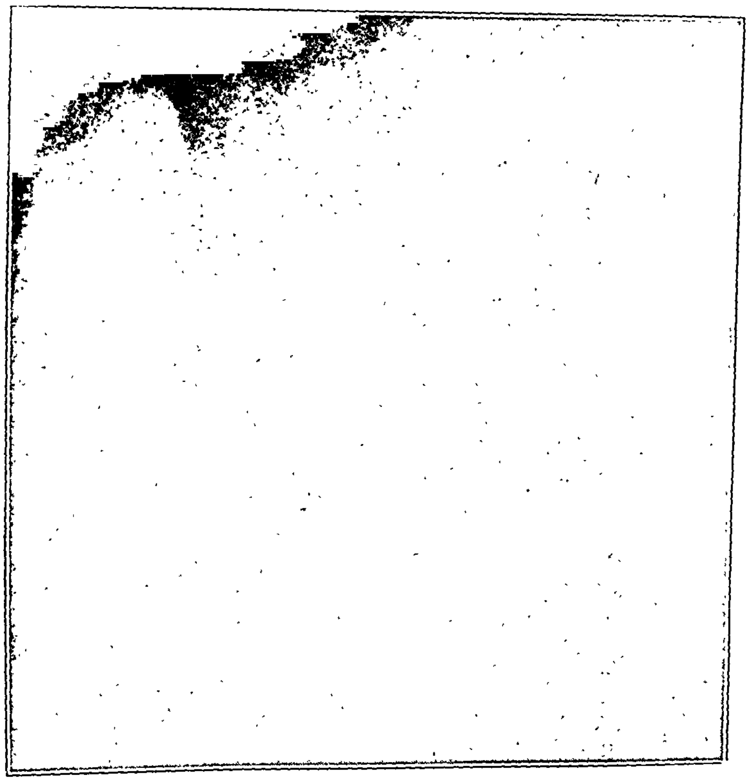

Fig. 1.—Perthes' disease. In this patient the acute symptoms that had persisted for over two years in spite of immobilization cleared up rapidly under mixed treatment without fixation.

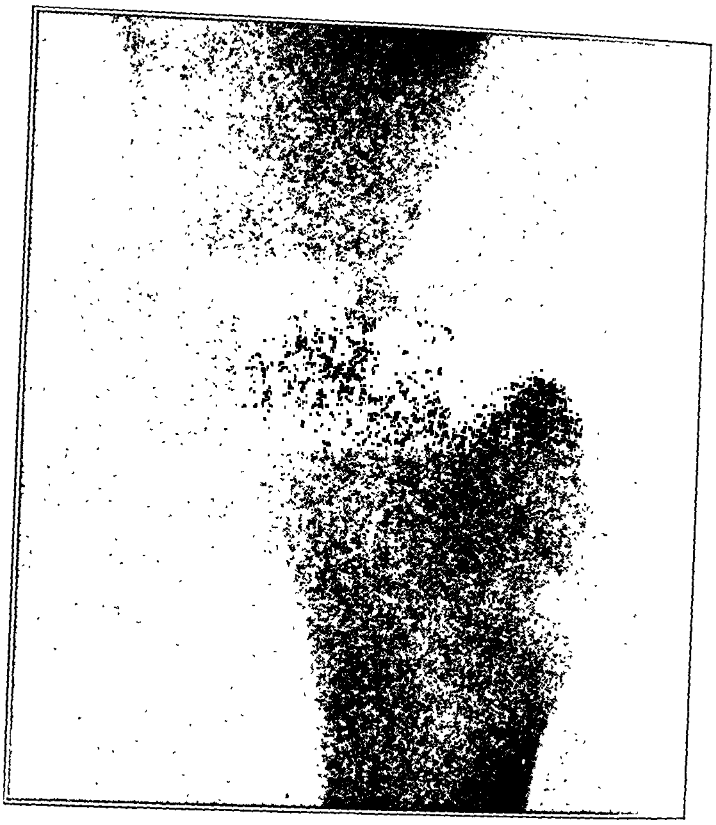

Fig. 2.—Perthes' disease. Acute pain and limited motion had been present for a year and three months, and under mixed treatment the condition disappeared within ten weeks.

Then again we find in subjects with Perthes' disease dental evidence of inherited syphilis. This does not mean hutchinsonian teeth necessarily, but more frequently the erosions and malformations of the first permanent molars and other units that have been so well described by Cavallaro, or anomalies of spacing of the incisors, to which I recently called attention.[1] These dental signs indicate that spirochetes were undoubtedly present in the body during the period of gestation, and it is a reasonable conclusion that they may have persisted to cause the condition known as Perthes' disease, just as they may persist to cause other forms of bone lesions in children.

Finally, the course of osteochondritis of the hip is similar to that of many other syphilitic joint conditions in that the destructive process is self limited and that there is a tendency to more or less complete restoration of function.

In view of the foregoing facts it would appear that treatment of Perthes' disease on the hypothesis that it is of syphilitic origin is worthy of further investigation, and it is for the purpose of stimulating interest in the subject that this argument is presented. In the writer's experience all syphilitic bone and joint conditions improve more rapidly when the dose of potassium iodid is carried to the point of tolerance than when dependence is placed on a routine dose of moderate size, and it is suggested that this technic be used when medication is adopted.

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[1] Roberts, P. W.: New York Med. Jour., 11, 1917.

To illustrate the effect of mixed treatment, the histories of two cases under observation on the service of Dr. H. L. Taylor, at the Hospital for Ruptured and Crippled, are appended with roentenograms that confirm the diagnosis.

REPORT OF CASES

Case 1.—The patient, Ida G., aged 8 years, was suffering pain and limped in July, 1914. Night cries were noted at that time. She was treated at two different clinics for tuberculosis of the right hip. The limb was placed in a plaster cast for a year and four months. The plaster cast was then removed for a month. Pain, restlessness at night, restriction of motion and spasm reappeared and another plaster spica was applied at the Hospital for Ruptured and Crippled, Dec. 1, 1915. This treatment was continued until March 21, 1917, when the patient came under my observation. The plaster cast was removed; the hip was found to be stiff and extremely sensitive. The teeth indicated congenital syphilis, and the child was therefore placed on mixed treatment and the spica fixation discontinued. Two weeks later the patient reported for examination. Pain and spasm had disappeared. There was free rotation and considerable flexion without discomfort. From that date there has never been any return of pain. Improvement has continued, and on Oct. 1, 1917, there was flexion of the thigh to 45 degrees inside of a right angle; free rotation; no limp, and the child was extremely active. The roentgen-ray findings were typical of Perthes' disease (Fig. 1).

Case 2.—The patient, Elsie G., aged 11 years, complained, in February, 1916, of pain in the right leg; the patient limped, and tired easily. She came under observation, May 2, 1917. There was flexion of the thigh to a right angle and full extension, but rotation in extension was limited. Rotation in flexion was blocked and abduction was extremely limited. Pain and spasm occurred on attempt to force motions and there was a marked limp in walking. The teeth indicated congenital syphilis, and the patient was put on mixed treatment without any protection to the hip. A month later there was flexion to 45 degrees inside of a right angle and some rotation with the thigh flexed. There was no pain, and the child was much more active and felt better. July 18, 1917, there was almost normal flexion and free rotation with thigh flexed. There was no pain and no limp. The roentgenograms revealed typical Perthes' disease (Fig. 2).

In Case 2 the symptoms had existed a year and three months and disappeared under suitable medication in ten weeks.

576 Fifth Avenue.

Quadricentennial of Dodoneus.—The *Nederlandsch Tijdschrift voor Geneeskunde* of June 30 was devoted entirely to historical sketches of Rembertus Dodoneus, a great physician and botanist of the sixteenth century. His works include the "Cosmographia," "History of Plants," "Praxis Medica" and the "Cruydt-boeck," in which he contributed much to the materia medica of western and northern Europe which had been neglected by previous writers. He was offered the post of body physician to the king of Spain, as successor to Vesalius, but declined. Later he accepted a similar position with the emperor of Austria until he was called to the chair of clinical medicine at the University of Leyden.

SYSTEMATIZATION OF A SURGICAL SERVICE

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In modern industrial organization, the highest degree of efficiency is attainable only by intense systematization. In hospital management the interdependence of efficiency and systematization should be recognized. Yet, this conception has been slowly grasped, reluctantly accepted, and compromisingly adopted by the medical profession. Although a mechanical and inelastic system is not suggested for the care of the sick, the advantages of a systematic plan of service, so far as this is consistent with the development and application of medical skill, are striking.

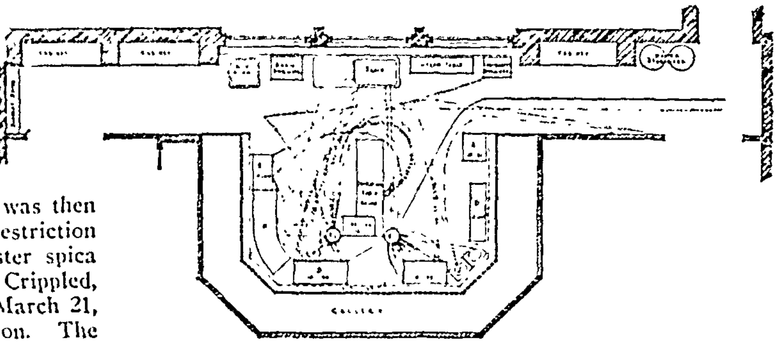

Fig. 1.—Movements of nurses during an operation for appendicitis: *N-1*, head instrument nurse; *N-2*, sponge nurse; dotted lines indicate steps taken by nurses during the operation; lines without arrows indicate "round trips," those with arrows indicate "one way trips."

Until a few years ago, hospital services were relatively small, diagnostic methods simple, the staffs small, and the turnover slow. Consequently the details were simple, comparatively few, and readily kept in mind. The treatment of the individual patient was, in general, conscientious and satisfactory.

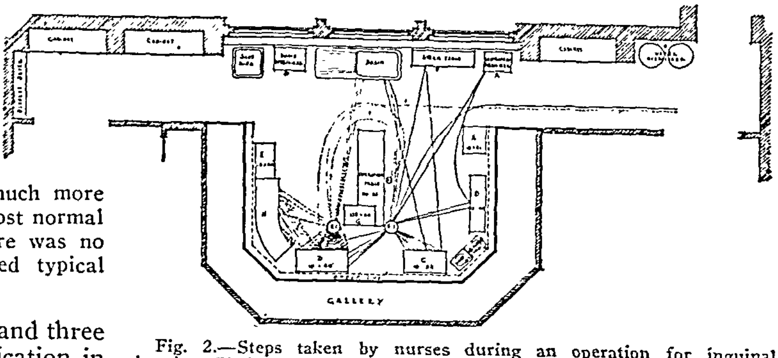

Fig. 2.—Steps taken by nurses during an operation for inguinal hernia. Similar in plan to Figure 1.

With the large service of the present day, however, the complicated methods of diagnosis, the large staffs and the rapid turnover, systematization has become essential. By means of it, the time and the energy of the staff are conserved; moreover, other things being equal, thoroughness in the study and treatment of each case is better insured, and oversights and mistakes are less in proportion to the degree of systematization.

The essentials for systematization are supervision by a permanent director and specialization in details by other members of the staff. Our service has been developed with these objects in view.

The surgical department of the New York Hospital consists of two independent divisions. They are similar in organization. We are to consider, however, only the second surgical division.

The staff of the division consists of an attending surgeon, senior associate surgeon, junior associate surgeon and assistant surgeon. Gradation is important in that it eliminates questions of authority and prerogative.

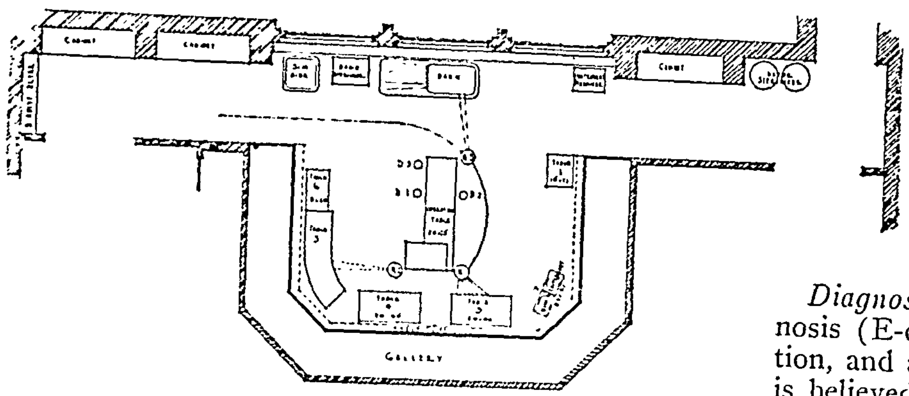

Fig. 3.—Marked reduction in movements and labor of nurses due to the introduction of simplified methods in the operating room. New and larger tables installed. Diagram was made during an operation for appendicitis.

The attending surgeon is in charge and is responsible continuously. The two associates, while equal in rank so far as hospital appointment is concerned, are graded for work on the division. When the attending surgeon is absent, the senior associate takes his place; the junior associate assumes the work of the senior, and the assistant acts as junior associate. Under this plan, the policy of the division is unvarying, because in the absence of the attending surgeon, the routine and regulations are enforced by the associate, who acts in his stead and not independently. A concerted and unchanging policy is thus possible. But such a plan demands the subordination of the individual to the welfare of the service; associates and assistants must serve the hospital as members of a team rather than as individuals.

Inspection rounds, followed by conference with free discussion, are held once a week, and a follow up or end-result system has been established. This routine furnishes the chief with an accurate knowledge of the work of the division, unifies the ideas of the staff, develops a harmonious spirit among them, and checks the immediate and late results.

The weekly inspection rounds are conducted by the attending surgeon, with the staff and student clerks. Practically every case is dressed, the treatment of the wounds is discussed, and permanent records of the condition of each patient and wound are made on the bedside charts. Following the rounds, there is a conference which is attended by the entire staff, including attending surgeons and interns. The conference embraces:

1. A review of the work of the past week, which includes: (*a*) operative results; (*b*) diagnostic errors, and (*c*) late results.
2. Report of standing staff committees (outpatient department, student clerks, follow up system, operating room technic, clinical records, etc.).
3. Reports on special subjects assigned by the chief to a staff member; or a review of the literature bearing on some unusual case on the service.

We will consider these topics in detail.

Operative Results.—Unfavorable results and unfavorable developments are analyzed: (1) deaths; (2) infections, and (3) other postoperative complications, such as hematomas and pneumonias. An effort is made to determine the cause of each unsatisfactory development. As advised by Codman, the poor results are tabulated into:

1. Errors due to lack of technical knowledge or skill (E-s).
2. Errors due to lack of surgical judgment (E-j).
3. Errors due to lack of diagnostic skill (E-d).
4. The patient's enfeebled condition (P-d).
5. The patient's unconquerable disease (P-d).
6. The patient's refusal of treatment (P-r).
7. The calamities of surgery, or those accidents and complications over which we have no control.

Diagnostic Record of the Week.—Errors of diagnosis (E-d) are referred to the operator for explanation, and a general discussion of the case follows. It is believed that such an analysis and discussion leads to greater care in arriving at a correct and exact diagnosis before operation, emphasizes the causes of diagnostic errors, and suggests means for avoiding them.

To obtain an exact diagnostic record, we employ the following method: The anesthetist, before the beginning of each operation, notes the anteoperative diagnosis on the anesthesia chart. The operator is entitled to record his diagnosis up to the time of making his initial incision; after that it cannot be changed. At the end of the operation, a revised diagnosis is recorded.

In cases in which the diagnosis at the close of the operation is still in doubt, as in certain tumors, and in some cases presenting abdominal symptoms in which no lesion has been found, final decision as to the diagnosis is deferred until it is determined by the pathologist's report or by the course of the case.

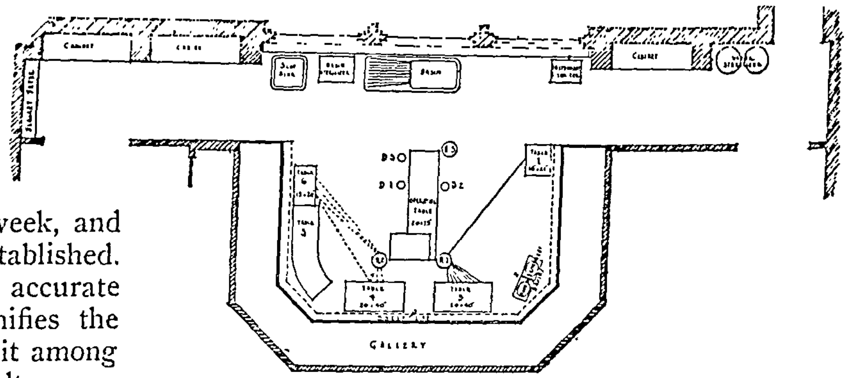

Fig. 4.—Similar in plan to Figure 3. By the elimination of unnecessary steps, the work has been greatly simplified. Diagram was made during an operation for inguinal hernia.

End-Results.[1]—The late results in the cases which have been examined on the previous Sunday morning are analyzed. Those recorded as "fair" and "poor" are discussed, and, if necessary, the original histories of the cases are reviewed. The causes of failures are sought, and measures for avoiding similar failures are considered. The errors or failures are grouped according to the classification described under operative results.

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[1] The details of our end-result system have been described by Bancroft, F. W.: Bull. Johns Hopkins Hosp., 1916, 27, 201.

A brief comment on the end-result system is appropriate. The conscientious management of a surgical service demands not only a detailed knowledge of the immediate results of operative treatment, but also the ultimate or end-results. The operative policy of a surgical service is directly dependent on the study and analysis of the late results of operations. If it is found that a certain procedure is not giving permanent relief, the members of the staff will be stimulated to devise means that will improve the results. For example: During the two years in which this system has been in use, it has been found that a certain number of patients operated on for chronic appendicitis have not been relieved of their complaint. Certain members of the staff are now making a careful analysis of all cases diagnosed as chronic appendicitis, with the object of determining wherein lies the fault. Such a study can be made effective only by careful analysis of the end-results of a large series of cases in conjunction with the histories, physical examinations, laboratory data, roentgen-ray records, and operative findings.

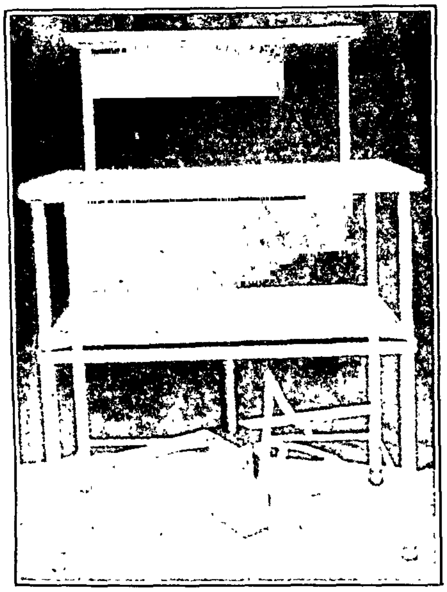

Fig. 5.—New supply table with foot pump. Elevation is used when patient is in the Trendelenburg position. Two tables are in use in the operating room, one each for the instrument nurse and the gauze supply nurse.

A follow up system, to be effective, must be so planned that all patients leaving the hospital are followed for at least one year, and selected patients for a longer period.

All patients on leaving the wards are requested to return for observation at the end of three months; if examination at that time indicates that there is no need for earlier observation, they are requested to report again at the end of nine months. We have been able to obtain the late results in approximately 90 per cent. of our cases.

We cannot emphasize too strongly the credit due to Codman of Boston for initiating the follow up system and bringing the profession to an appreciation of its importance; also to Corscaden of the Presbyterian Hospital, New York, for his extremely efficient method of putting the follow up system into effect. We employ his card system with slight modifications.

Attempts have been made to arrange the work in the wards in such a manner that the maximum attention may be given the patients with the minimum waste of effort. Complete rounds are made daily by one of the staff. Each member of the attending staff has definite days on which he makes morning rounds on all the cases on the division. Patients in the wards are considered as belonging to the division and not to individual members of the staff. In other words, if one of the attending staff refers a case to the service, the patient becomes a ward of the division. Thus, each patient has the advantage of study by the entire staff. No hardship is involved, because no fees are collected for ward patients, except workmen's compensation cases, and the fees for these are collected jointly for the needs of the division.

There is a rule of the division that the operator must examine all patients on the afternoon preceding operation. This, therefore, necessitates the visiting of the hospital every afternoon by one member of the staff.

Three difficulties are often encountered in large surgical services:

1. Delay in ordering and making appropriate laboratory and clinical examinations.

2. Delay in calling the attention of the attending surgeon to very ill patients.

3. Premature dismissal from bed and hospital of patients who have been operated on by the zealous house surgeon who wishes to make room for patients who are to undergo operation.

To overcome these difficulties the following methods have been adopted:

1. An associate has been placed in charge of each ward. It is his duty to visit his ward daily and to see all the patients who are to be operated on, order roentgen-ray and laboratory examinations as indicated, direct and expedite history taking and physical examinations, and note on the chart his diagnosis and suggestions as to treatment. He also supervises the postoperative therapy.

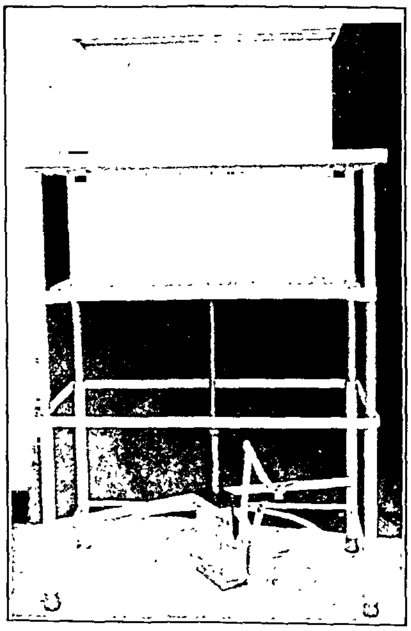

Fig. 6.—Same table as shown in Figure 5, which has been elevated for the Trendelenburg position.

2. A day book is kept on the nurses' desk, with three columns for names: In the first column are noted those patients who have not been operated on;

in the second, patients not doing well or requiring investigation, and in the third column, the names of patients presumably ready for discharge. The attending surgeon can thus learn at a glance the salient facts.

3. Each patient before going home is examined by one of the associates, who writes a discharge note on the chart. This record includes a statement as to the general condition of the patient and the condition of the wound, and a brief summary of the postoperative course. The associate gives the patient a note to the family physician or to the dispensary. In this he describes the operation and convalescence, and suggests treatment. If he considers the patient unable to leave the hospital, he instructs the nurse to keep the patient until further notice. Consequently, it is seldom that patients leave the hospital too soon or in improper condition.

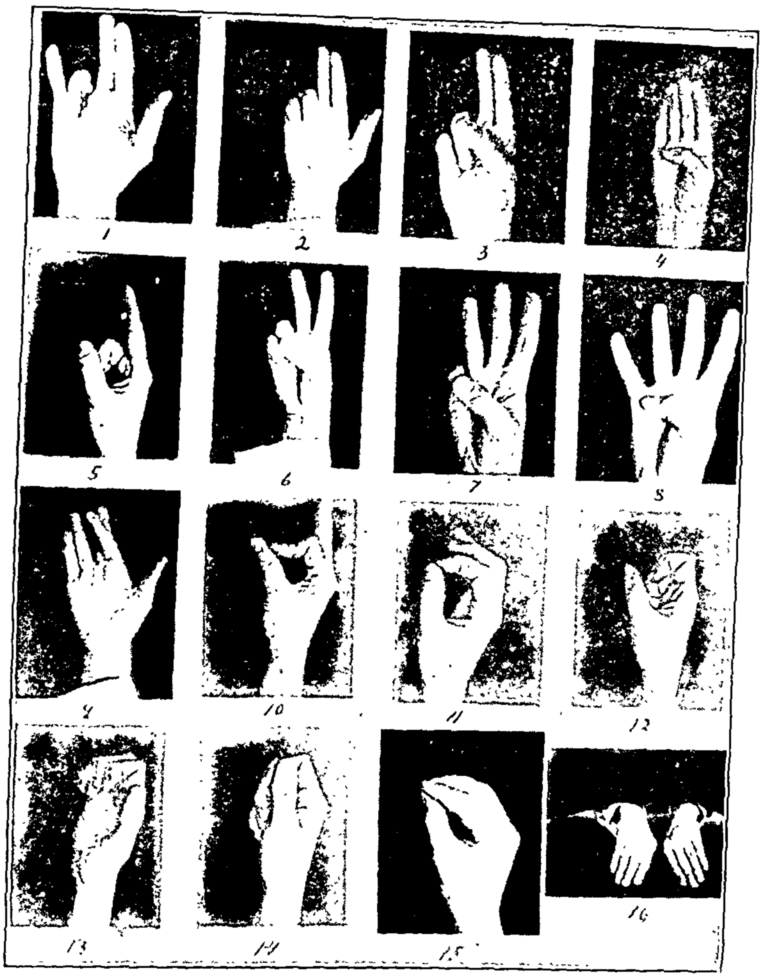

Fig. 7.—Manual signal system for use during operations: 1 *a*, artery clamp; *b*, Allis clamp (intestinal forceps); as artery clamp with wriggling of little finger; *c*, Kocher clamp, as artery clamp with wriggling of thumb; 2 *a*, Towel clip; *b*, Kelly clamp; as towel clip plus wriggling of thumb; 3, ligature; 4, sponge pads; 5, *a*, scalpel, with cutting motion; *b*, straight needle, with rotary motion; 6, *a*, thumb forceps; *b*, scissors, opening and closing fingers; 7, tissue forceps, one and two teeth; 8, tissue forceps, many teeth; 9, sharp retractors; 10, palm down: *a*, large right angle retractors, thumb and index finger; *b*, medium right angled retractors; use middle finger instead of index finger; *c*, small right angled retractors, use ring finger instead of index finger; 11, palm up: *a*, large string pad, thumb and index finger; *b*, medium string pad, thumb and middle finger; *c*, small string pad, thumb and ring finger; 12, *a*, McBurney, small; *b*, McBurney, large; use both index and middle fingers; 13, abdominal retractors; 14, *a*, aneurysm, rotary motion; *b*, cautery, squeezing motion; 15, palm down: *a*, large sponge stick, sponging motion; *b*, curved needle, rotary motion; *c*, small sponge stick, as 15 *a*, but with palm up; 16, towel, spreading motion.

OPERATIVE TECHNIC

An effort has been made to simplify the work in the operating room. The properly trained operating staff should be a well-balanced machine; it is, however, difficult to attain this end. In the average hospital, each member of the attending staff has his individual ideas as to the arrangement of the operating room and of instruments, etc. It often becomes necessary to arrange the room and to plan certain details even of routine operations differently for each man. The lack of uniformity interferes with a fixed policy, leads to confusion, and imposes a greater burden on the helpers. All routine operations should be standardized: the arrangement of the room should be uniform; a given number of instruments should be on the tray, and the same suture materials and instruments should be used. As far as possible, the same incision and procedure should be employed, but unfortunately the vagaries of the human body and the uncertainties of diagnosis require occasional deviations. However, it is possible in most cases to follow a regular system.

The staff, at the conference, decides on the routine types of operation. Let us take inguinal hernia, as an example: The modified Bassini operation with transplantation of the cord has been adopted; all members of the division use this method; all use the same instruments, sutures and needles. If a member of the staff disapproves the method or of any detail, he must present his criticisms and suggestions at a regular weekly conference.

The chief often assigns the study of a certain type of operation to a member of the staff, who presents his report at a subsequent conference. Discussions at these meetings are often very instructive.

We are making constant efforts to secure simplicity and a safe routine in the operating room. When the effort to systematize this service was begun two years ago, we felt that there was much waste of effort in the operating room work and that certain features of the work were glaringly inefficient. Let us illustrate with one detail: the steps taken by the nurses during an ordinary operation by reason of improper planning and thoughtless arrangement of the necessities for an operation. It was decided to make notes of the steps taken by all concerned during an operation. To accomplish this, one of us (Bancroft) dictated to a stenographer the movements of the various nurses and physicians during a routine operation performed by the attending surgeon (Pool). Two operations, the repair of an inguinal hernia and an appendectomy for chronic appendicitis, were thus recorded.

We made a ground floor chart of the operating room, drawn to scale with the tables in place for the operations. On this, the movements of each nurse from the beginning to the end of the operations were outlined (Figs. 1 and 2). After analysis of the dictated records and the graphic charts, we found the main faults to be:

1. Lack of system.
2. Too many and too small tables for sterile supplies, extra instruments, etc.
3. Unnecessary energy wasted when the patient is in the Trendelenburg position by nurses stepping down from benches to obtain supplies from tables and stepping up again to reach the operative field or instrument tray.

To correct these faults, we explained to the operating room staff the significance of the charts, and impressed on them the importance of simplifying the work. By interesting the nursing staff, we have been able to cut down the unnecessary steps to an astonishing degree, as is evident by reference to Figures 3 and 4.

Three of the old tables were discarded and two new ones (Figs. 5 and 6) were substituted. These are much larger than the old ones, and are provided with a foot pump so that they can be raised or lowered easily. Raising these tables to the proper level eliminates the necessity for the nurse to move from the bench in order to obtain extra supplies during pelvic operations. The stimulus to improve the technic of the routine operations keeps the staff on the alert and counteracts the monotony of the routine cases.

We have adopted a signal system (Fig. 7) for use during operations. Many others, notably Brewer, have adopted such a procedure more or less extensively, and we refer to it merely as a suggestion to those who have not had the idea called to their attention. The habit of signaling becomes automatic, and the appropriate instrument is quickly obtained. The method seems to add to the smoothness of the operation.

COOPERATION WITH DISPENSARY

An effort has been made to bring the dispensary and the hospital service into close association. The fourth man on the service is chief of the dispensary, and his privileges in the wards are dependent on his management of the dispensary. Each of the other three members of the staff is expected to visit the dispensary on a definite day each week; his visit is scheduled for a certain time, and unusual cases are reserved for his inspection and advice.

About once a fortnight, a member of the dispensary staff gives a clinic. Invitation cards are sent to the physicians of the neighborhood, and unusual cases or new methods of therapy are presented. This stimulates interest and prevents initiative being obliterated by routine.

The history of every case sent from the dispensary to the wards accompanies the patient and is attached to the ward history. On discharge, a note is written by the house surgeon summarizing the operation, pathologic findings and convalescence. The dispensary history is then returned to the outpatient department. In this manner, it is possible for the outpatient surgeon to follow his cases.

Ventilation of Shipholds After Fumigation.—Experiments by the officers of the Public Health Service in the fumigation of ships for the killing of rats suspected of being the source of plague have shown that sulphur dioxid and hydrocyanic acid gas are the best fumigants. The latter is most efficient and desirable because it takes less time, and the ship may be put into service sooner after fumigation. To shorten the time still further and render the ventilation of the ship's compartments more complete, experiments were conducted. Grubbs of the Public Health Service describes in *Public Health Reports*, Oct. 19, 1917, the methods employed. In India, according to Heiser, the gas is aspirated from the vessel through the pipes used to fill the holds with the gas. This method was not employed by Grubbs. Electric fans were placed in the vessels and operated by the electric plant belonging to the vessel. It was found that the time of ventilating the ships could be shortened, but there were objections on account of handling the wires connected with the fans. A gasoline-driven air propeller, designed to propel boats and sleds, was then employed. This was found to deliver about 22,700 cubic feet of air a minute. This fan was used for distributing the gas in the hold and also for ventilation. In its use for the latter purpose, it was attached to the hatch combing and the air introduced into the hold through muslin chutes. It was found that this machine in ten minutes would throw into the bottom of the hold an amount of air equal to the cubic capacity of the ship. This fan has been modified so that it will work horizontally, and is arranged on a frame so that it may be carried by two men. It weighs less than 100 pounds. It has been found expeditious and satisfactory.

SURGICAL TREATMENT OF CHRONIC ENTEROCOLONIC DIARRHEA*

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Chronic diarrhea can be temporarily relieved by rest, strict diet, antiseptic, astringent and antiperistaltic drugs and irrigation through the anus, but often recurs when the patient returns to business, eats normally and discontinues medication.

Chronic inflammation or ulceration of the intestine, however produced, is often difficult to cure except by surgical intervention. By operation and irrigation, I have permanently cured many diarrhea patients who had been previously treated for months or years by nonsurgical measures.

Up-to-date physicians and surgeons realize that removal or direct treatment of bowel lesions is essential to the successful handling of many types of chronic diarrhea; and I hold that the time has arrived for the profession to give "intestinal stasis" a rest and to devote its attention to the operative treatment of otherwise incurable chronic diarrhea.

The family physician must be taught to differentiate between different types of frequent movements that he may intelligently treat them, or refer the patient to the proper specialist according to their cause; for instance, pyorrhea cases to the dentist; ear, nose and throat infections to the laryngologist; psychic and neurogenic disturbances to the neurologist; ptomain poisoning, gastrogenic or enterogenic dyspepsias to the gastro-enterologist; functional and organic disease to the practitioner or internist, and inflammatory, ulcerative or obstructive lesions of the small intestine, colon or rectum to the coloproctologist.

INFLAMMATORY AND ULCERATIVE ENTEROCOLITIS (DIARRHEA)

Usually diseases causing diarrhea are characterized by inflammatory or obstructive intestinal lesions, formerly discussed under the captions of intestinal catarrh, tuberculosis, syphilis and dysentery; but increased knowledge concerning the etiology of diarrhea makes this classification untenable.

The term "dysentery" is often applied to intestinal ailments characterized by the syndrome of abdominal pain, rectal tenesmus and fluid evacuations containing blood and mucus; but the appellation is confusing, since it has no etiologic significance, and dysenteroid manifestations complicate all ulcerative intestinal affections.

Generally chronic diarrhea is incited by colitis. Would it not be wise to forget so-called "dysenteries" and to classify inflammatory and ulcerative intestinal lesions etiologically, an arrangement that would permit their discussion under the headings of catarrhal, tuberculous, syphilitic, gonorrheal, endamebic, bacillary, balantidic, flagellate, coccidic and helminthic colitis and enterocolitis?

Catarrhal Enterocolitis.—This affection is quite common, and may be associated with constipation or diarrhea, when the mucosa is inflamed, excoriated or ulcerated. Catarrhal colitis can be relieved usually without surgery when the patient abstains from violent exercise or work, adheres to a suitable diet, and takes medicine to lessen fermentative and putrefactive changes, to destroy intestinal bacteria, to minimize toxins, to allay peristalsis and to heal the bowel. In neglected cases, when the small and the large intestines are involved by numerous ulcers, colonic medicated irrigations and high oil and bismuth injections sometimes effect a cure; but when they fail, the abdomen should be opened and a catheter inserted into the ileum, cecum or appendix, and the bowel flushed daily with physiologic sodium chlorid or medicated solution until the lesions are healed and the diarrhea subsides.

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* Read before the Section on Gastro-Enterology and Proctology at the Sixty-Eighth Annual Session of the American Medical Association, New York, June, 1917.

Syphilitic Colitis.—Enteritis and colitis syphilitica are rare, but intestinal syphilis rapidly destroys the mucosa or induces stricture. The process makes the intestine brittle, and in two of my cases the bowel broke in two while being lifted into the wound. Good results are obtained by extirpation of the involved intestine; but when the patient declines radical operation, jejunosigmoidostomy or ileosigmoidostomy or rectostomy is indicated.

Urgent manifestations occasionally make ileostomy or colostomy imperative to prevent death from perforation or obstruction.

Two of my patients in whom an artificial anus was established for syphilitic diarrhea, one seventeen, and the other twenty-five years ago, are earning their living. Salvarsan or antisyphilitic drugs alone are valueless when the intestinal mucosa is extensively ulcerated or the bowel stenosed.

One hesitates about extirpating the rectum, when distorted by a syphilitic stricture and ulceration, since the operation is tedious and more hazardous than proctectomy for cancer, owing to adhesions and brittleness of the intestine.

Gonorrheal Enterocolitis.—I have never known gonococci to attack the small intestine, but I have treated many patients for gonorrheal colitis and proctitis. Usually I have been able to arrest the inflammatory process and control diarrhea, pain and rectal tenesmus by daily colonic irrigation, using a 4 per cent. solution of argyrol or a 2 per cent. solution of ichthyol.

Endamebic Enterocolitis.—Endamebiasis, common to tropical countries and temperate zones, has been encountered frequently in the United States, since we took possession of Porto Rico, and the Hawaiian and the Philippine Islands. The disease is caused by *Endameba histolytica*, an organism difficult to eliminate permanently because it embeds itself in the mucous membrane and submucosa and breaks out and reinfects the bowel following an apparent cure.

Endamebiasis is characterized by chronic diarrhea with mucus, pus and blood in the stools, and loose movements are caused by an inflammed or ulcerated mucosa, endamebic hepatic abscess or intestinal stricture.

The manifestations and degree of diarrhea induced by endamebiasis depend on the segments of bowel involved and the degree of ulceration, for in the beginning, denuded areas are few, small and superficial, but when there is mixed infection, the mucosa of the colon and the rectum is distorted by superficial or undermining ulcers having intercommunicating fistulas.

Abdominal pain, diarrhea, hemorrhage and tenesmus are mitigated by rest, dietary, oil enemas, colonic irrigation and antidiarrheal drugs, but aggravated endamebiasis is rarely cured without surgery, though temporary improvement has followed the administration of from 20 to 30 grains of ipecacuanha or 1/4 grain of emetin administered as required.

The lesions may be confined to the colon and rectum, but in several of my cases the lower ileum was infected and patients complained of terrific colic, abdominal distention, explosive fluid and acrid, foul-smelling stools.

Drainage through the appendix or cecum is not effective when the ileum is involved, and my enterocecostomy, which provides a means of separately or simultaneously irrigating the large and small intestine, meets indications in these cases.

Appendicostomy and cecostomy are a godsend to patients afflicted with endamebic or other types of ulcerative colitis, because they are easy to perform, are not dangerous, and provide a vent for through and through medicated irrigation, which frees the intestine of pathogenic organisms, acrid discharge, toxins and irritating débris, relieves autointoxication, heals ulcers and arrests diarrhea.

Ichthyol, 2 per cent. and hydrogen peroxid, 5 per cent., the irrigants of choice, are superior to quinin.

When the patient is exhausted from starvation, diarrhea and hemorrhage, the colon is irrigated twice, but in less urgent cases daily flushing is sufficient. Recovery is prompt following direct bowel treatments, and usually the patient gains rapidly in weight.

Hepatic abscesses complicating endamebiasis are opened and drained.

Bacillary Enterocolitis.—This affection is common in China, Japan and the tropics, and is more virulent when caused by Shiga's than by Flexner-Harris', Hiss', Park's, Duval's or other dysenteric bacilli.

Bacillary colitis is encountered in France, Germany, Russia, the United States and other cold climates, but usually in epidemic form and most often in unhygienic penitentaries, insane asylums and barracks.

The infection rapidly destroys the mucous membrane by ulceration or diphtheric sloughs unless arrested by the serum treatment.

Abdominal pain, frequent bloody evacuations and rectal tenesmus disappear in from three to four days in mild, and in from four to six days in aggravated cases following the injection of serum, except when it is not powerful or the patient has an idiosyncrasy against it. Sometimes several weekly injections are required to cure diarrhea.

Since serums are useless in endamebic colitis, this form must be differentiated from the bacillary type.

Serums are not effective in the presence of mixed infection, or when the intestine is distorted with ulcers, fistula or stricture.

I have cured many patients with appendicostomy, cecostomy or my enterocecostomy and frequent colonic flushing, using antiseptic, astringent or healing solutions. In extreme cases characterized by colonic distortion, excision, short-circuiting or establishment of an artificial anus served their purpose.

Since the surgical treatment of balantidic, flagellate and coccidic colitis is similar to that outlined for endamebic chronic diarrhea, they will not receive further consideration.

Helminthic Enterocolitis.—This affection is rare, but frequent evacuations may be caused by irritation from tape worms, strongyloid or lumbricoid worms, flukes, whipworms, threadworms and hookworms, or obstruction may be induced by a collection of parasites. Usually helminthic colitis is relieved or cured by purgation, vermifuges and high chemical injections, but enterotomy and colotomy have been employed when evacuating worms, and twice I succeeded in eliminating the parasites with their ova by appendicostomy and cecostomy followed by bowel flushing.

Tuberculous Enterocolitis.—The intestinal segments (duodenum, jejunum and upper ileum) coming first in contact with the organisms are seldom involved, while the ileocolic angle is attacked in 85 per cent. of cases.

Tuberculous foci may originate in the mucosa and extend to deeper tunics or begin in the serosa.

There are several varieties, namely, *superficial-ulcerative*, *deep-ulcerative*, *neoplastic*, *fibroplastic*, glandular and peritoneal, the first three being the most common.

Surgical intervention is indicated in bowel tuberculosis when other measures fail, infection is virulent, hemorrhages frequent, diarrhea is exhausting, the patient's strength is being rapidly depleted, and when there is complicating perforation, peritonitis, stricture, abscess or fistula.

Operative interference is contraindicated when the sufferer is dying from phthisis or tuberculous lesions elsewhere.

When through and through irrigation by way of the appendix or cecum fails to cure ulcerative colitis, it is because irrigations are not copious, not properly medicated or they are always carried out with the patient in the same posture, which prevents the fluid from coming in contact with all sides of the diseased intestine.

Local gas or gas-oxygen is preferred to ether anesthesia, because the latter aggravates pulmonary foci.

Successful operations accomplish removal of the disease, diversion of the fecal current, or provide for through and through colonic irrigation.

Depending on their location, tuberculous foci are extirpated by enterectomy, cecectomy, sigmoidectomy or proctectomy. Short-circuiting is accomplished by entero-anastomosis or unilateral or bilateral exclusion; and through and through bowel flushing is achieved by ileostomy, appendicostomy, cecostomy or my enterocecostomy.

Resection is the procedure of choice, and tuberculous subjects stand the operation well, except when adhesions are extensive or the bowel is severely traumatized, and the removal of a few inches more of the intestine does not make the undertaking more hazardous.

Occasionally preliminary exclusion, appendicostomy or cecostomy are advisable to prepare the patient properly for radical operation.

I have short-circuited the small or large intestine ten times for tuberculosis, and putting the bowel at rest markedly benefited eight patients.

Usually I perform appendicostomy or cecostomy in connection with exclusion, in order that by through and through flushing I may prevent the backing up of feces and treat lesions directly.

Short-circuiting is not always satisfactory, because it is more often palliative than curative; convalescence is longer than following extirpation; bacilli-laden discharge continues to pass over healthy intestine; the disease sometimes attacks the anastomotic opening, necessitating a second operation, and no attempt is made to extirpate tuberculous glands.

Appendicostomy, cecostomy or Gant's enterocecostomy is indicated when the patient is being weakened by diarrhea, bacterial or chemical toxemia, hemorrhages, gas accumulation, colic, tenesmus or burning pains incident to acrid discharges, and when enteroclysis by way of the anus fails.

Through and through irrigation palliates or cures superficial and deep ulcerative types, but rarely benefits neoplastic, fibroplastic, glandular and peritoneal enterocolonic tuberculous foci which require extirpation.

OBSTRUCTIVE (MECHANICAL) ENTEROCOLONIC DIARRHEA

This represents a type of diarrhea in which evacuations are made frequent or liquid by lesions that block the bowel. Patients of this class complain of constipation, then obstipation, alternating with loose movements, and finally diarrhea when obstruction is marked.

Obstructive diarrhea is usually mistaken and treated for diarrhea caused by gastrogenic, enterogenic and neurogenic disturbances, because physicians fail to examine properly the abdomen, colon and rectum. It seldom originates in the small intestine, but lesions responsible for it are common to the colon, sigmoid flexure and rectum.

Diarrhea is attributable to valvelike fecal masses that irritate or obstruct the intestine, and to stercoral ulcers that augment peristalsis.

The following lesions may cause loose evacuations or alternating diarrhea and constipation: congenital deformities, extra-intestinal pressure, stricture, tumors, foreign bodies, intestinal calculi, fecal impaction, adhesions, angulation, diverticula, pericolic membrane, sacculations, diseased mesentery, volvulus, kinks, hernia, invagination, procidentia recti, enteroptosis, colonic dilatation, enterospasm, parasites, hypertrophy of O'Beirne's sphincter, the rectal valves, or levator ani and sphincter muscles, coccygeal deviation and anorectal affections.

Obstructive diarrhea has a complex etiology and different operations are required to relieve it, many of which are effective and bring good results.

Congenital anorectal deformities are common, but colonic malformations are rare. In partial congenital colonic obstruction, nonoperative measures work temporarily; but when it is complete or almost complete the deformity must be corrected or excised.

Anorectal occlusion caused by narrowing of the anal canal, a membranous partition or fibrous band, is corrected by a free incision and subsequent rectal divulsion.

When the anus is imperforate, the rectum is dissected free and sutured in the anal region, and complicating fistula is eliminated by closing the opening following repair of the rectum.

Extra-abdominal pressure causing diarrhea is removed by destroying adhesions, anchoring the uterus, excising the prostate or extirpating the tumor compressing the bowel.

Strictures involving the small intestine, colon or sigmoid flexure are excised unless inoperable, when obstruction is relieved by exclusion or colostomy. Rectal stenoses are difficult to remove, and, barring deplorable instances, obstruction is overcome by posterior proctotomy and dilatation, or colostomy and putting the bowel at rest.

Benign and malignant tumors cause persistent diarrhea, which continues until they are excised, short-circuited or an artificial anus is made. Colonic resection is indicated, since it effects a cure, and lateral anastomosis with a large opening is preferable to end to end anastomosis, which frequently leads to obstruction and recurrence of diarrhea.

Rectal cancers, according to their location, are extirpated by perineal, vaginal, sacral or abdominoperineal proctectomy, except when inoperable, and then colostomy is performed.

Polypi of the large intestine are treated like cancers, but rectal polyps are ligated and excised or removed by attaching my valve clamp to their pedicles.

Occasionally rectocolonic papillomas are cured by frequent colonic irrigation.

Foreign bodies inducing diarrhea are evacuated with high oil enemas, but when encysted or caught in a bowel kink, enterotomy or colotomy is required. Free bodies in the rectum are drawn through the proctoscope with forceps, but when imbedded, or if they have sharp angles, divulsion or division of the sphincter facilitates their extraction.

Colonic fecal impaction consequent on constipation, enterospasm or obstruction induces coprostatic diarrhea, until offending scybala are expelled by castor oil, massage and frequent high oil or hydrogen peroxid enemas, which disintegrate the masses so they can be washed out.

Fecal impactions in the sigmoid and rectum are broken up with a gouge through the proctoscope, or with the finger when low, after which they are evacuated by irrigation.

Adhesions causing obstructive diarrhea vary, and routine surgical procedures are impracticable. When threadlike or due to exudates, they are destroyed by massage, with the finger, or wiping glued intestinal loops apart; but organized fibrous bands and rigid sheathlike adhesions are exposed by celiotomy, and severed or dissected from the bowel. Their reformation is lessened by covering raw areas, floating the bowel in sterile oil or saline solution, encouraging postoperative peristalsis, and frequently changing the patient's posture.

Resection, exclusion or an artificial anus is indicated when the intestine is completely incapacitated by undestroyable adhesions.

Pericolic or Jackson's membranes compressing the bowel are eliminated by ligating and severing their attachments and peeling them from the cecum or colon; but, in deplorable instances, the involved intestine is excised or excluded, or a vent is made above the block.

Angulations and twists are treated as above if caused by adhesions, but when due to ptosis, the intestine is straightened, replaced and anchored to the anterior or posterior abdominal wall by colopexy, unless its functionating power is permanently destroyed, in which case extirpation, short-circuiting or an artificial anus is imperative.

Chronic invagination of the sigmoid flexure into the rectum complicated by coprostatic diarrhea is quickly and permanently relieved by sigmoidopexy alone, or in conjunction with colopexy.

Colonic dilatation is quickly corrected by coloplication reinforced by colopexy; but when caused by constricting adhesions they are eliminated, or obstruction is relieved, by colectomy, ileosigmoidostomy or a cecal anus.

Diverticula occasionally induce frequent evacuations containing foul-smelling pus. Small pouches are ligated and removed, buried by inversion and suture or extirpated by elliptical incisions and closure of the wound; but large and inflamed diverticula complicated by peridiverticulitis or abscess are excised. Short-circuiting and colostomy are contraindicated unless there is perforation, or an abscess or fistula.

Sometimes a cure is effected by dissecting out the fistulous sinus opening, cleansing and draining the diverticular cavity, reinforced by suturing the bowel opening.

Splanchnoptosis, enteroptosis and coloptosis often cause alternating diarrhea and constipation that continue until ptotic organs are reanchored by gastropexy, colopexy, sigmoidopexy and nephropexy alone or combined.

Enterospasm is controlled by hot water drinking, high warm enemas, hot abdominal fomentations, and belladonna continued until intestinal contractions, colic, constipation and diarrhea are relieved. Where enterospasm is prolonged and causes partial or complete obstruction, resection or an artificial anus is sometimes indicated.

Hypertrophy of O'Beirne's sphincter at the rectosigmoidal juncture is occasionally responsible for obstructive diarrhea, and when not relieved by hot fomentations and belladonna, topical application to ulcers or stretching the narrowed intestine with an inflatable rubber bag, extirpation or exclusion may be necessary.

Thickened rectal valves responsible for coprostatic diarrhea are eliminated by my valvotomy.

Sphincteric hypertrophy producing constipation and diarrhea, formerly treated by divulsion under ether, is immediately overcome by severing the muscle, following eucain infiltration.

Fissure-in-ano inducing sphincteralgia and fragmentary evacuations is quickly cured by splitting the anal canal under eucain anesthesia.

Hemorrhoids responsible for diarrhea are infiltrated, ligated and excised.

Procidentia recti is corrected by linear cauterization, removal of rectal flaps, or, in aggravated cases, by reinforcing these procedures by sigmoidopexy.

Coccygeal Abnormalities.—When the bone obstructs or perforates the rectum, coprostatic or irritating diarrhea ensues and continues until the coccygeal tip is excised.

In cases of mechanical diarrhea, however, produced when the bowel is atonic, dilated or partially paralyzed, or the patient suffers from autointoxication, removal of the obstruction does not cure unless reinforced by tonics, stimulation of the emunctories and colonoclysis to eliminate the toxins.

Finally, in deplorable cases of obstructive diarrhea with toxemia, I perform appendicostomy or cecostomy, when getting rid of the block, that the bowel may be cleansed of toxins and débris by through and through irrigations.

CONCLUSION

I would emphasize the frequency with which surgery is indicated in treating chronic enterocolonic diarrhea, and the rapid curability of the condition by operation reinforced by the therapeutic measures outlined.

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Military Medicine and Surgery

THE EAR AND AVIATION

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In aviation we have a practical example of the importance of the ear in maintaining equilibrium. It is now recognized that equilibrium is made possible by three senses—the balance-sence of the internal ear, sight, and a group of general impressions which for convenience is called the "muscle-sense." It is not necessary for an individual to have perfect internal ears, perfect sight and perfect muscle-sense in order to have good equilibrium. If the internal ears are impaired, the individual can maintain his equilibrium by means of sight and the muscle-sense; if his sight is impaired, the ear-sense and the muscle-sense enable him to maintain his balance; and if his muscle-sense is impaired, as in tabes, his ear-sense and sight are sufficient to enable him to stand and walk with confidence and accuracy. For this reason we must remember that, through various toxemias, such as mumps, syphilis and the infectious fevers, a person may have an impairment and even a complete destruction of his ear balance-sense and yet not be in any way conscious of this defect, simply because his sight and muscle-sense make it possible for him to maintain his equilibrium.

These facts, however, take for granted that the individual is on "terra firma." When the human being becomes a bird, as it were, he suddenly finds himself in an entirely new environment. Without functionating internal ears, it is impossible for a person to be a good bird-man. When flying through the air, on what does the aviator rely in order to maintain his equilibrium and that of the aeroplane? Can he rely on sight? Hardly; for when he is sailing through the clouds or darkness, his eyes cannot give him the slightest information about his position in space—not even whether he is right side up or upside down. As regards the muscle-sense, it is undoubtedly true that it plays a certain part; but when the aviator is seated on an unstable and rapidly moving machine, it is hardly conceivable that the weight of his body could determine and maintain his position in space merely by the sensing of gravity. In order, therefore, to preserve that wonderful accuracy necessary in controlling such a delicate mechanism as the flying machine, he relies preeminently on his *ear* balance-sense. It is easily conceivable that some of the unexplained accidents in aviating may be due to a concussion of the internal ear produced either by the deafening roar of the engine or by the decrease of the air-pressure when at great heights. Also in a rapid ascent from a denser to a rarer air there occurs an oxygen insufficiency which has a direct effect on the ear-mechanism through the blood stream. It is also highly probable that many an aviator has gone to his death because, all unknown to him, he did not possess a normal ear-mechanism; in the presence of a combination of difficulties in which all normal faculties would be requisite, because of an imperfect ear-mechanism he was unable to maintain his balance.

To realize the importance of the ear in the matter of flying, it is only necessary to consider a bird flying in a cloud. His muscle-sense naturally means practically nothing to him; his sight is of no help. He relies almost exclusively, therefore, on normally functionating semicircular canals, which, as we know, are wonderfully developed in the bird.

Summarizing, therefore, even when an individual is standing or walking on the earth, his ears constitute his sense-organs of balance; as long as he remains on the earth he has in addition the contributory help of information received from his muscle-sense and his sight. When he rises above the earth and flies in the dark it is obvious that these contributory factors are practically eliminated and that he must rely almost exclusively on the ear balance-sense.

Since normal internal ears are such an asset—in fact a prime requisite—for the aviator, common prudence would suggest a most careful examination of the degree of function of one's internal ears before taking up flying as an occupation. The ear-tests furnish exact and mathematical data concerning the function not only of the internal ear, but also of the entire vestibular apparatus; this includes the ears themselves, the eighth nerve, the brain-stem, the cerebellum and the entire balance-mechanism.

When it was announced that a state of war existed between the United States and Germany, it at once became apparent that a tremendous number of aviators must be secured for the military service within the shortest possible time. The medical problem consisted of selecting thousands of physically equipped candidates for aviation and placing them in training for war service immediately. The Medical Department found it necessary to decide on new methods of physical examination and to adopt new standards of physical qualifications for this branch of the service. This had to be done not merely for one place or for one examining group; it was necessary to make the tests practicable for cities in all parts of the United States, without, at the same time, in any way lowering the requisite rigid standards or lessening the completeness of the examination. How could this be done? In a word, such an ideal could be attained only by: (1) the standardization of the tests, and (2) the standardization of the *examiners*.

STANDARDIZATION OF TESTS

The methods presented in this paper were adopted in May, 1917, as the standard for the United States Army. The following briefly summarizes the fundamental principles underlying the examination for aviators. The aviator must be in a sense the "superman." He must have $^{20}/_{20}$ vision without glasses. He must have $^{40}/_{40}$ hearing. Such requirements are higher than for most branches of military service. A candidate for every branch of service must conform to a certain physical standard; he must be a normal man, such as would satisfy the average life insurance company, with the additional requirements of a certain relative height, weight and chest measurement, and a definite visual and auditory acuity. Like any other candidate for service, the aviator must conform to all these requirements and in addition must possess visual and auditory acuity to a high degree. There is, however, an attribute not required by any other branch of the military service that is indispensable to the perfect aviator—a good *balance-mechanism*. Therefore the peculiar test, applied to the aviator alone, is the special examination of the equilibratory portion of the internal ear.

So presented in the official blank, the equilibrium and the vestibular tests are made thus:

The nystagmus, past-pointing and falling after turning are tested. The turning-chair must have a head-rest which will hold the head 30 degrees forward, a foot-rest and a stop-pedal. (The American Modification of the Bárány chair is officially required. This made possible the establishment of an absolute standard. While the tests could be made by using other types of turning-chairs, an exact quantitative estimation of the responses can be definitely established only by the use of a standardized chair.)

(*a*) *Nystagmus.*—First of all, a spontaneous nystagmus must be looked for. It is noted whether there is any twitching of the eyes when gazing straight ahead, or looking either to the extreme right, the extreme left, up or down. With the head forward 30 degrees, the candidate is turned to the right, eyes closed, ten turns in twenty seconds. The instant the chair is stopped, the stop-watch is clicked; the candidate opens his eyes and looks straight ahead at some distant point. There should occur a horizontal nystagmus to the left of twenty-six seconds' duration. The candidate then closes his eyes and is turned to the left; there should occur a horizontal nystagmus to the right, of twenty-six seconds' duration. A variation of ten seconds is allowable (either as low as sixteen seconds or as high as thirty-six seconds).

(*b*) *Pointing.*—1. The candidate closes his eyes, sitting in a chair facing the examiner, touches the examiner's finger held in front of him, raises his arm to the perpendicular position, lowers the arm, and attempts to find the examiner's finger. This is done first with the right and then with the left arm. The normal person is always able to find the finger.

2. The pointing test is repeated after turning to the right, ten turns in ten seconds. During the last turn, the stop-pedal is released, and as the chair comes into position, it becomes locked. The right arm is tested, then the left, then the right, then the left, until candidate ceases to past-point. The absolutely normal will past-point to the right three times with each arm, if needless delay is avoided. (However, one past-pointing to the right of each arm qualifies, if the nystagmus and falling are normal.)

3. The past-pointing is repeated after turning to the left. (Similarly one past-pointing of each arm to the left qualifies, if the nystagmus and falling are normal.)

(*c*) *Falling.*—The candidate's head is inclined 90 degrees forward. He is turned to the right, five turns in ten seconds. On stopping, the candidate quietly sits up, eyes closed, and should fall to the right. This tests the vertical semicircular canals. He is turned to the left, the head forward 90 degrees; on stopping, he again sits up, and should fall to the left.

Obviously these tests as presented in this blank are not intended to make a diagnosis of a pathologic lesion. The object is merely to determine *whether or not the ear-mechanism is normal.* If, in these tests, the candidate shows normal responses in nystagmus, past-pointing and falling, he is fit for the Aviation Service; if he does not, he is unfit for that service. These simple turning-tests eliminate all unnecessary time-consuming diagnostic procedures. The entire series of tests as outlined in the blank requires only three and three-fourths minutes, and yet in this short time we are able to determine the integrity of the internal ears, the eighth nerves, and the pathways through the medulla oblongata, the pons, the six cerebellar peduncles, the cerebellum itself and the cerebral crura to the cerebral cortex.

Incidentally, these tests are in no sense severe, and are in fact seldom regarded even as unpleasant. Occasionally nausea occurs after a few turnings; it is then merely necessary to stop the examination for the time being and to complete the remainder of the tests after an interval of a half hour. There is no need whatever to make these tests in any way distressing to the candidate.

These turning-tests quickly separate the obviously fit from the unfit. The majority of the candidates show normal responses; no further testing is required, and they therefore qualify and are accepted. Some candidates show such markedly subnormal responses that they are immediately disqualified and rejected. A limited number give what might be termed "border-line" responses; the question then arises, Has this particular applicant *sufficient* balance-sense to become an aviator? It is here that the caloric test is useful. The turning has tested both the right and the left ears simultaneously. The caloric method enables us to test each ear separately. Water at 68 F. is allowed to run into the external auditory canal from a height of about 3 feet through a stop-nozzle, with the head tilted 30 degrees forward, until the eyes are seen to jerk or the individual becomes dizzy. The length of time from the beginning of the douching until the jerking of the eyes becomes apparent, or until the applicant says he is dizzy, is accurately measured by a stop-watch. The type of nystagmus is then noted. It should be rotary, and the direction of the jerk should be to the side opposite to the ear douched. The length of time shown by the stop-watch in the normal is forty seconds. The eyes are then closed and the past-pointing is taken. The head is then immediately inclined backward 60 degrees from the perpendicular (or 90 degrees from the original position). There should then appear a *horizontal* nystagmus to the side opposite to the ear douched. The eyes are then closed, and the past-pointing is taken with the head in this position. The left ear is then douched, and the same procedure carried out. If the caloric test applied in one of these "border-line" cases shows only a slight impairment of the responses from each ear, the candidate is qualified. A slight impairment would be indicated if, instead of the normal forty seconds of douching, there was required not more than ninety seconds of douching. If one ear shows normal responses, whereas the other ear shows responses only after *more* than ninety seconds of douching, the candidate is disqualified. Care should be taken to be certain that the cold water is reaching the drum-head during the caloric test, as wax or other obstruction in the external canal would interfere with the responses in a perfectly normal individual.

The examination of a candidate for the aviation service is a different matter from the examination of a patient. We are dealing with an alert mind, anxious to make the best showing possible. Many candidates feel that "jumping eyes" and evidences of vertigo are signs of weakness and would be counted against them. Because of this anxiety, many candidates attempt to shorten the duration of the nystagmus by fixing the eyes on some near object. It is perfectly possible by the fixing of the eyes to shorten the duration of the nystagmus. It is a common experience in this work to note that when many observers are standing about the candidate and in his line of vision, the nystagmus is usually of short duration. If these observers are asked to stand back out of the line of vision, the same candidate almost invariably shows a longer duration of nystagmus. Further to obviate fixation of the eyes, it is always necessary to place the chair near a large window so that the candidate has an unobstructed view of an object placed at "infinity"—over 100 feet. Furthermore, instead of obeying the natural impulse to past-point, candidates frequently make a mental calculation as to the vertigo induced, and voluntarily attempt *not* to past-point. This is also true of falling. In such instances, the examiner, bearing in mind the type of individual with whom he is dealing, urges the applicant to "act perfectly naturally," and is then usually able to elicit a true response to the test. Supposing, however, that the candidate still fails to past-point, although he has shown a normal nystagmus and falling, we are able to decide the matter finally in the following way: First the quantitative estimation of vertigo is taken. The after-turning vertigo is measured as follows. The candidate is turned to the right, ten turns in ten seconds with the eyes closed. As he is being turned, he is asked to describe his sensations and to keep on telling in which direction he feels he is being turned; thus he will say, "To the right, to the right, to the right," etc., until the chair is stopped; then he will feel himself turning in the opposite direction and will say, "Now I am going to the left, to the left, to the left," etc., when as a matter of fact he is sitting perfectly still in the chair. The duration of this sensation of vertigo from the time that the chair is stopped until he ceases to feel that he is going to the left is taken in seconds with the stop-watch. The normal should show an after-turning vertigo of twenty-six seconds. The test is then repeated by turning to the left, and the candidate should exhibit a vertigo in the opposite direction of twenty-six seconds. Should the candidate show over sixteen seconds of vertigo in both directions, having previously shown a normal nystagmus and falling, the examiner then realizes that the absence of past-pointing was probably due to a calculated correction rather than to any pathologic condition. The question is definitely determined by douching the ears. Although a candidate can estimate the significance of the sensation of vertigo after turning, he has no control over this sensation after douching; he is unable to calculate the meaning of the vertigo produced by the caloric test. Therefore, if he fails to past-point after the douching-tests, he is definitely disqualified.

STANDARDIZATION OF EXAMINERS

So much for the standardization of the tests themselves. Equally important was the problem of the standardization of the examiners. For this purpose a medical officer was sent under special orders to each of thirty cities throughout the United States, and in each one of these cities there was established a medical unit for the examination of candidates for the Aviation Service. The requirements of the tests were fully explained to each medical unit, so that not only the same equipment is used, but also exactly the same technic. This rendered it impossible for any candidate to say, "I wish I had been examined in a certain city where the tests are easy, rather than in a certain other city where the tests are exacting." Those otologists were selected who were most expert in the Bárány-tests, and given intensive training by the medical officer sent for the purpose of establishing a uniform technic. Thus, in a few months the testing was put on an absolutely uniform basis in all examining centers.

In order to save time, already existing institutions, such as large hospitals or state universities with their equipments, were utilized as these examining centers. Volunteer staffs of civilian consultants were locally organized, and the work of the examining centers systematized to a point of highest efficiency, with the result that within a few days of the arrival of the medical officer at the examining center the work was in full swing. By this method of *decentralization*, the examination of thousands of applicants in a minimum space of time was made possible. First of all it was necessary to make sure that those in charge of each examining center were fully equipped and capable to make these tests; this once assured, full authority and responsibility were vested in the medical officer in charge of each center. Thirty medical aviation centers, each examining from ten to forty candidates a day, provided immediately the thousands of men required.

It is obvious to the candidate himself, that if he is deficient in his ear balance-sense he is not only a danger to the service, but he is also unnecessarily imperiling his own life when he attempts to fly. Certain members of the medical profession and certain veteran fliers, because of the newness of these methods, expressed skepticism in regard to their value. One physician, a member of an examining unit, was surprised to find that when he himself was examined, he showed an almost complete lack of ear balance-sense. The turning and caloric tests failed to produce nystagmus, vertigo, past-pointing and falling. This impairment of the ear-mechanism was directly traceable to a severe attack of mumps in childhood, during which he had suffered from both of the usual complications of mumps—an orchitis and an involvement of the internal ears. His skepticism was changed to enthusiastic conviction when he thus was made to realize that without the Bárány tests he would have had no conception of this physical disability, the only suggestion of which, up to that time, had been his knowledge that he did not become seasick.

All experienced aviators that have been examined have, without exception, shown normal responses in the turning-chair. Those veteran aviators whose attention has been called to these methods of testing have expressed their conviction of the practicability of the safeguards provided by these tests in determining whether or not a man has what they speak of as "air-sense.' One seasoned American flier of fifteen years' experience stated that his doubt changed to conviction after he was examined in the turning-chair; he volunteered a statement that from his intimate knowledge of the circumstances attending the death of at least three aviators, who were killed while flying, their failure to negotiate difficulties of no unusual degree which resulted in their death might now be understood as an expression of their lack of this sense. He further added that in his judgment, if these tests had been available in the early days of flying, many a life might have been spared.

The value of the past-pointing test is well illustrated by one candidate who proved to have a post-traumatic cerebellar lesion, which was first detected by the isolated absence of past-pointing of the left arm to the right. Neurologic examination then demonstrated classical signs of lesion of the left cerebellar hemisphere. Here was a man with distinctly impaired cerebellar function attempting to enter a service in which the utmost demands are made on the cerebellum.

One ardent applicant was disqualified because of a markedly impaired internal ear, in both the cochlear and vestibular portions. It has since been learned that he went to another country, where he was accepted in the aviation service as a flier. Obviously the requirement in that country is not so high as in the United States. At the present time in the United States a high standard is required because this country is in a position to pick and choose. The vast numbers of splendid applicants makes this possible. For this reason these hand-picked men will constitute not only the largest but also the most capable and finest aviation service in the world.

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THE METHOD OF EXPERIMENT IN MEDICINE

"In a country rich in gold, observant wayfarers may find nuggets on their path; but only systematic mining can provide the currency of nations. In the search for natural knowledge, the experimentalists are the miners." There is a peculiar appropriateness in these words of Gowland Hopkins of Cambridge University at a time when men's minds are diverted by the great emergencies of war and are upset by the distorted values of every-day life. Nowadays it would require a foolhardy person to maintain that "there is nothing new under the sun," or to prophesy what cannot be done. The progressive evolution of science is expressed in the arts exemplified daily before us. We marvel at the newest phase of the conquest of the upper air or the ocean depths, at the irresistible force of the newest explosive or the perfection of the latest motor, all too often oblivious of the great strides that experimentation in medicine has brought about.

It is always refreshing and not infrequently stimulating to indulge in retrospect. What currency have the experimentalists in medicine provided in the passing years? The history of bacteriology and the entire structure of the modern conception of infectious diseases is a triumph of the experimental method. The real causes of diseases known from earliest history have been elucidated so that the modern therapeutist can build on the basis of this newer knowledge, and the sanitarian can prepare himself effectively for the struggle against invasion by micro-organisms. More recently even the diseases caused by pathogenic protozoa have yielded their story to the experimentalist.

Less startling, perhaps, but equally unique in its disclosures has been the discovery of the functions of internal secretion. The story of the pancreas, the thyroid structures, the suprarenals, the pituitary, the corpus luteum and the sex glands, each in turn presents a new point of view of regulation that takes us out of the domain of pure speculation into the field of biochemistry. It is only a few years at most since we were totally ignorant of these things. How imperfect and hampered medical thought would appear today without them! Added to this is the inroad already made in the experimental study of natural immunity to which clinical medicine already owes a great debt.

It is well for those strenuously engaged in the daily routine of the physician's life to recall some of these illustrations. The art of the physician, says Hopkins,[1] remains as before, a noble and difficult one, which must always call for special personal endowments; but experiment has widened the knowledge on which it is based, and experiment alone could have secured the progress which the last half century has witnessed.

We cannot expect the public to wax enthusiastic over something that those most concerned fail to appreciate; nor can we hope for their much needed support in any feature of medical progress that the physician himself does not heartily endorse. Experimentation in medicine belongs to a profession rather than to a trade, and therefore is not purely self-supporting or conducted solely for gain. But, as Hopkins has formulated the matter, it is not financial assistance alone that the nation should provide for the investigator. This is not even the most important stimulus that the nation can provide for him. Recognition and proper standing in the body politic are the investigator's due, and these, at least, should be forthcoming.

DANGERS IN THE MANUFACTURE OF ARSENICAL INSECTICIDES

Any one who makes even a casual inspection of a considerable variety of industries in this country must become convinced that despite the growing attention paid to the dangers of occupational conditions, there is still enormous room for improvement and reform. Too few of the industries in which workmen are menaced by harmful dusts, fumes or gases take cognizance of the menace to the extent of providing adequate safeguards, especially if they are not enforced by direct provision of the law. Industrial hygiene is still scarcely beyond its beginnings in many factories of this country.

An illustration of an industry that might have been expected to make better provision against dangers that must long have appeared obvious to even the uninitiated is furnished by recent investigations under the direction of the New York State Department of Labor[2] regarding dangers in the manufacture of Paris green and Scheele's green. These arsenical compounds, the poisonous qualities of which have been known many years, are at present manufactured by ten firms in the United States, of which firms seven are located in the state of New York. Fully 1,000 tons are produced annually, the material now being used chiefly as an insecticide. It appears that considerable illness exists among many of the workers engaged in the production of Paris green, an outcome due in a measure to a lack of knowledge among those engaged in its preparation, and a disregard of the extremely poisonous qualities that this salt possesses. The inspectors of the New York Industrial Commission's Division of Industrial Hygiene report that, as the workers are unacquainted with the dangerous and poisonous properties of the arsenical insecticides, many cases of arsenical poisoning are not discovered, because as soon as a slight irritation of the skin develops or nausea occurs, the men leave the industry, and the labor engaged therein is constantly shifting.

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[1] Hopkins, F. G.: Medicine and Experimental Science, in Science and the Nation, edited by A. C. Seward, Cambridge, 1917.

[2] Dangers in Manufacture of Paris Green and Scheele's Green, Special Bull. 83, State of New York Department of Labor, July, 1917.

The chief source of danger lies in the poisonous dust produced—not the irritating dust of some industrial operations, which has only a mechanical action and acts directly on the parts most exposed, nor infected dust, which carries pathogenic germs; but poisonous dusts, which are gradually absorbed and produce an actual intoxication. The New York investigators report, for example, the chemical analysis made on the air in one of the packing rooms in which the filling of boxes from barrels was performed. Three hundred and five mg. of Paris green were found per cubic meter of air at 60 F. This material occurring in the air was generated in the process of hand filling, blown off the walls and ceiling, and stirred up from the floor in the act of walking. A proper method of weighing and filling under enclosed hoods, clean walls and floors would have eliminated this large amount of dust. Samples of underclothing were analyzed and found to contain 1.1 mg. of Paris green in a piece measuring 6 square inches.

As the result of findings such as these, orders have been issued in plants wherever the labor laws are applicable against all conditions found to be detrimental to health. These orders relate to the prohibition of eating within the factory; the cleaning of floors, walls and ceilings; the provision of running hot water, soap and individual towels; the installation of exhaust systems to dispose of the dust created in the process of manufacture; the furnishing of a suitable place in which to eat meals, and the adoption of suitable means to remove dust from the floors. The inspection of the workers in the New York State factories shows the importance of periodic medical examinations for men engaged in the production of poisonous products. It is evidently useless, however, to provide up-to-date facilities for the comfort of workmen at mealtime if cleanliness throughout the plants is so neglected that the accumulated toxic materials are tracked into the room on the shoes of workmen. What is needed is better education of the workers respecting the poisonous properties of the materials with which they are concerned, and a greater sense of responsibility on the part of the manufacturers and employers for the health of their employees.

PROBLEMS IN THE CAMPAIGN AGAINST THE HOOKWORM

The important investigations on the incidence and control of hookworm disease that are being made in many parts of the world by the International Health Board of the Rockefeller Foundation have brought to light many striking facts. To the casual student of the subject, it might appear that the sole essentials in the management of a malady having a definitely ascertained etiology would be to eradicate the causative organism or eliminate the channels of infection, and to administer suitable curative agents to those already afflicted. The importance of soil pollution in the spread of hookworm disease is now clearly recognized in the campaigns being conducted against it; but in the tropical and subtropical belt, which is the native habitat of the hookworm in different parts of the world, unanticipated local and geographic conditions have placed some surprising obstacles in the path of progress in certain regions.

The hookworm surveys made in 1916 in Barbados and in British Honduras brought to light many striking facts, recorded in the latest report of the International Health Board. Thus they showed the important relation between geological structure and hookworm infection. The greater part of the island of Barbados is composed of porous coral limestone, which allows rapid seepage and percolation. The ground dries quickly, a condition unfavorable to the growth of young hookworms; and even though the thin superlying stratum of soil is polluted by fecal matter, this may easily seep away during rain. The smaller portion of Barbados, known as the "Scotland district," has an underlying structure of impervious sandstone and clay. This picturesque highland district shows heavy infection; it is estimated that in it 25,000 persons suffer from hookworm disease within an area of less than 25 square miles. In British Honduras, when other contributing factors have been eliminated, the rate of infection is seen steadily to increase as one travels south, following a change in geological formation from porous limestone to impervious clay.

In the East there has arisen a difficulty in relation to soil pollution that is of greater importance than the spread of hookworm disease. In western countries the problem of human sewage is primarily one of hygiene. In the East, as Heiser has pointed out, it is also a question of direct economic importance, owing to the use of excrement as fertilizer. In China, human excrement is a source of revenue to the state. The director-general of the International Health Board has thus presented the situation: Human excrement is the only fertilizer available in sufficient quantities to supply agricultural needs. China has no sewerage system. Each night in urban centers the excrement is collected by coolies, who carry it in wooden buckets to temporary storage depots outside the city walls. To these depots, farmers and gardeners go in tank boats to purchase supplies, which they convey up the rivers to their plantations of rice and mulberry. There they dig the excrement into the fields, or moisten it with water and sprinkle it over growing vegetation. A relatively light infection in Chinese cities may thus become a serious factor in spreading the disease to agricultural districts.

Here, then, agriculture and hygiene seem to clash. Secretary Greene of the Rockefeller Foundation states that the sudden stopping of soil pollution in China would mean the impoverishment of the soil unless some substitute were placed within the reach of the people. No such substitute is now available. If the problem could be economically solved in such a way as to utilize excrement without danger to the health of the people, the result would not only be of vast economic significance to the East, but might also prove of equal significance to countries in which the same material is entirely wasted. The time may come when, even in this enlightened country, the nitrogenous wastes of millions of persons will find some better utilization than the crude methods of sewage disposal now afford.

INCREASED RANK AND MORE AUTHORITY FOR MEDICAL OFFICERS

As most of our readers are aware, an amendment was introduced into Congress at the recent session which, if it had been adopted, would have given the medical officers in the Army the same rank that prevails in the Medical Corps of the Navy. Specifically the amendment provided that there should be twenty-five one-hundredths of 1 per cent. of major-generals, the same proportion of brigadier-generals, 4 per cent. of colonels, 8 per cent. of lieutenant-colonels, 23.5 per cent. of majors, 32 per cent. of captains, and 32 per cent. of lieutenants, *this to apply to both the regular and the reserve corps men.* Thus, if there are 10,000 medical officers in active service, there might be 25 major-generals, 25 brigadier-generals, 400 colonels, 800 lieutenant-colonels, 2,350 majors, 3,200 captains and 3,200 first lieutenants. This amendment lapsed without action by the ending of the session. The substance of the amendment, however, will be incorporated in a bill which will be introduced in both the Senate and the House at the coming session of Congress.

Medical officers must be equal in rank and authority with line officers if they are adequately to carry out the duties for which they will be held responsible. This fact has been emphasized by the experience of our allies in the present war, as well as by our own experience in the past. Our allies admit that in the beginning the medical officer did not have the rank, and consequently the authority, he should have had and that, for this reason, there have been grievous consequences. Among these was the disastrous experience of the British Army in the Mesopotamian campaign as a result of the failure of the medical service. The report of this tragedy, made by a board of nonmedical men, showed that lack of authority of the medical officers was an important factor. The medical officers were practically ignored. They were not advised as to the character of the expedition that was being undertaken, and as a consequence, they were unprepared for what happened. When later a medical officer made urgent representations in regard to the actual conditions obtaining, which in his opinion needed prompt action, he was threatened with arrest and removal from his post. When the actual results came the blame was thrown on the medical department, of which this medical officer was a member. The medical officers were censured because they had not protested more vigorously. We had a similar experience in 1898 when our medical officers were criticized for insanitary conditions at Chickamauga and elsewhere, although there was plenty of evidence to show that they had protested against these conditions to line officers. The whole sad story is told in detail in the Dodge report. There, also, will be found testimony that line officers treated with contempt the recommendations and protests made by medical officers. The medical officer is without influence simply because his shoulder straps indicate lower rank than that of the line officer with whom he is associated. Some may sneer, but the fact remains that it is rank that counts in both the Army and the Navy.

Of course rank brings with it increased pay. This, however, is immaterial. At the same time, it should not be forgotten that most of the physicians now in the Medical Reserve Corps have not only left the comforts of their homes, but also have given up practices which in the majority of instances yielded far more income than the pay they would receive as medical officers of the Army even if they had conferred on them the highest rank that the proposed law would provide. Among these medical reserve officers are many of the most prominent men in our profession, including the leading men in the specialties, as well as our best surgeons and internists.

When the war broke out there were less than 450 medical officers in the regular Army Medical Corps. Today there are commissioned, including officers of the regular Army, the National Guard and the Medical Reserve Corps, at least 17,000 physicians. Less than 1,000 are in the regular Army Medical Corps. Under the present law these regular Medical Corps officers are entitled to the grades of lieutenant-colonel and colonel; and in the case of the surgeon-general, to that of brigadier-general[1]; the highest rank that can be conferred on any one of the other 16,000—that is, on any reserve medical officer—is that of major.

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[1] Surgeon-General Gorgas has the rank of Major-General by special act of Congress.

May we remind our readers that the men in active service will be prevented by the regulations from using their influence in this matter, and that the duty of pushing this measure rests on those who stay at home? Every physician has representing him in Congress one man in the House of Representatives and another in the Senate. If every physician will let his representatives know that this proposed measure should become a law, and if in addition he will enlighten his neighbors in regard to the matter, an effective public opinion will be created. The time is opportune; congressmen are at their homes. Write or speak to your representatives now; get your neighbors to do likewise—not for the good of the medical profession, but for the good of the service.

Current Comment

SOME CRITERIA OF ABNORMALITIES IN MILK DUE TO THE STAGE OF LACTATION

According to the standard adopted for certified milk by the American Association of Medical Milk Commissions, cow's milk obtained within a period of forty-five days before parturition is excluded from use as a human food. This regulation is based on the widely accepted assumption that pregnancy influences the normal composition of milk. To test the supposition, Palmer and Eckles[1] have conducted an analytic investigation of a number of cows of various breeds in the herd of the department of dairy husbandry at the University of Missouri. Selecting as standards for the limits of normal composition the figures 4.5 per cent. for fats and 4 per cent. for proteins, they ascertained very conclusively that the stage of gestation bore no evident relation to the time when the milk and milk fat passed the limits of normality chosen for comparison. The changes in the composition may, indeed, become very marked at various periods in the milking cycle, exhibiting a high protein and fat content and an abnormal composition of the milk fat. The new comparative analyses indicate that the abnormalities, in the sense of extremes of composition, to which cow's milk is subject when parturition is approaching, are in reality due largely, if not entirely, to the stage of the lactation period. The duration of this varies considerably for different individuals. Palmer and Eckles state that cow's milk shows anomalies as soon as the lactation stimulus becomes an artificial one on the part of the dairyman. Many cows show the abnormalities several months before the next parturition; while cows that are very heavy producers with periods of parturition the usual interval of twelve to thirteen months apart may continue to produce perfectly normal milk up to the very hour of the next parturition. If the stage of lactation is the crucial factor in determining aberrations in the composition of the milk, how is the end of the period to be recognized? This question is not easily answered, except on the basis of chemical analysis. The Missouri experts suggest that the percentage decrease in the milk flow from that when the cow was fresh affords some indication. They offer this practical advice: The milk from cows giving as low as a half-gallon a day should certainly be regarded with suspicion, and should be subjected to critical analysis, especially when the feeding of infants and children is concerned.

THE FEEDING OF WAR PRISONERS IN GERMANY

Among the duties that attach to the Medical Department of the Army in war is the inspection and supervision of the mess management, including not only the quality and quantity of the food, but also the hygiene of its preparation and distribution. This applies equally well to the prison camps, in which immense numbers of men are housed under the control of the nation whose captives they have become. The Journal publishes in this issue an article by Dr. Alonzo E. Taylor, professor of physiologic chemistry in the University of Pennsylvania, whose work formed the basis for the two noted reports to the American embassy at Berlin on the conditions existing among prisoners of the allied nations in Germany. This article on the feeding of war prisoners in Germany is especially timely. It is unusual because its point of view is broader than that of medicine, broader than that of science alone—in fact, as broad as humanity itself.

INTRAPERICARDIAL PRESSURE AND THE CIRCULATION

It is generally understood that one of the functions of the pericardium, if not its chief importance, is to check an excessive dilatation of the heart that might follow a pronounced rise in venous pressure which leads to the filling of the organ. Overfilling of the heart is prevented. Undue accumulation of fluid and rise of pressure within the pericardial cavity in turn produce a mechanical effect on the functions of the heart which may result in changes in arterial pressure. According to Kuno,[1] a very small amount of fluid in the pericardium causes diminution in the output of the heart. By further addition of fluid the output diminishes regularly. The arterial pressure changes only slightly until the amount of fluid in the pericardium reaches a certain limit. Beyond this limit the addition of a small amount of fluid causes a distinct fall of arterial pressure. The height of intrapericardial pressure which brings the circulation of blood to a standstill is just the same as that of venous pressure. If the venous pressure is raised during the standstill of the circulation, the blood flow is restored. In order to secure a recovery of the heart's action and circulation under a high intrapericardial pressure, therefore, it may become desirable to raise the venous pressure. This cannot well be done by injection into the veins. Kuno notes that an infusion of a large amount of blood causes no rise of venous pressure nor dilatation of the heart, or only a brief one. Such an infusion is therefore of no advantage to the circulation when this is hindered by pressure of fluid surrounding the heart. The intrapericardial pressure may sometimes be decreased, however, by the use of epinephrin; for this can diminish the volume of the heart and affect the organ favorably when it is compressed by fluid surrounding it.

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[1] Palmer, L. S., and Eckles, C. H.: Gestation Versus Stage of Lactation as Factors Causing Abnormal Composition of Cow's Milk, Am. Jour. Dis. Child., May, 1917, p. 413.

[1] Kuno, Y.: The Mechanical Effect of Fluid in the Pericardium on the Function of the Heart, Jour. Physiol., 1917, 51, 221.

THE BLOOD IN THE LUNGS

The capillaries of the lung are capable of great passive variations in capacity. This fact enables the lung to act as a sort of reservoir for one side of the heart. Any excess of output on the right side that cannot be dealt with promptly by the left heart is temporarily taken up by the wide lung capillaries, which offer very little resistance. Some idea of the extent of these variations is given by the current textbook statements. Thus, whereas at the height of inspiration the blood contained in the lungs is about one twelfth of the whole blood in the body, this amount is diminished during expiration to between one fifteenth and one eighteenth, and by forcible artificial inflation of the lungs may be lessened to one sixtieth.[1] In a recent experimental reinvestigation of the content of blood in the lungs in animals, however, Kuno,[2] of the Japanese Medical School at Mukden, has found that the amount is much larger than earlier authors have recorded. It varies from 9 to 19 per cent. of the total amount of blood. The amount of blood in the lungs increases with the acceleration of the circulation, that is, the amount of blood is about 2.2 times larger when the circulation is fast than when it is slow. When the lungs are edematous they may contain about one quarter of the whole blood, although the circulation is very slow. The time needed for the blood flow in the lungs is also more than twice as great when the circulation is slow than when it is fast. These observations, says Kuno, agree well with the necessities of life, since the amount of blood which comes in contact with the alveolar air may be directly proportional to the rapidity of the blood flow, or even increase in a higher ratio.

HUNGER AND APPETITE IN FEVERS

As has been pointed out at various times in THE JOURNAL,[3] the mechanism of hunger can now be studied in a purely objective way, in large measure independent of the impressions of the subject. The pangs of hunger are associated with rhythmic contractions of the walls of the empty stomach, and are presumably due to them. These movements can be recorded graphically by suitable instruments; the time of their occurrence, their intensity, and the factors that modify them in any way can be ascertained with the precision that belongs to modern scientific method. Impulses started by the gastric contractions are carried to the higher nervous centers, where they are recognized in normal consciousness as hunger. Appetite is not the mere sensation of pain from hunger contractions. It involves a psychic factor distinct from these physical changes, and concerns the memory of past experience with palatable foods. The clinician frequently observes conditions in which there is more or less complete loss of appetite and an absence of the pangs of hunger. This is especially true in the course of infectious diseases and in various acute exanthems. The absence of a compelling desire for food not infrequently offers a serious obstacle to the attempt to induce adequate nutrition. The reason for the loss of appetite has not been apparent, and at best the explanations commonly furnished are mere platitudes of vague hypothesis. In many instances the conditions that lead to an absence of hunger and appetite are associated with fever and the production of bacterial toxins. At the physiologic laboratory of the University of Chicago, Meyer and Carlson[4] have attempted to ascertain whether or not the elevation of temperature itself produces any effect on the hunger contractions of the stomach. Their observations by the use of the graphic method on gastric motility indicate that there is an absence of hunger contractions and a lowering of the stomach tonus during fever in dogs when the temperature reaches 103 F. and above, this being especially true in the temporary fevers. The temperature elevation itself is a factor in the depression of the stomach tonus and an inhibition of hunger contractions. Bacterial toxins, namely, paratyphoid, *B. prodigiosus*, and tetanus and diphtheria toxins, have no direct action on the contractions of the stomach musculature. The fever or the toxins appear to induce a lowering of vagus tone, on which in part the hunger contractions are believed to depend. But Meyer and Carlson do not believe that this will account for the absence of hunger during a fever lasting from ten to twenty days. The fact that external heat itself has, as they showed, a depressing effect on gastric hunger contractions is regarded by the Chicago investigators as significant with respect to gastric motility. Thus they say that the gastric derangements in young infants with the onset of warm weather may be due in part to the heat factor itself. It is conceded, of course, that the gastric enzymes and the food play a part in the disturbance.

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[1] Starling, E. H.: Human Physiology, 1915, p. 935.

[2] Kuno, Y.: On the Amount of Blood in the Lungs, Jour. Physiol., 1917, **51**, 154.

[3] The Stomach in Hunger, editorial, THE JOURNAL A. M. A., Feb. 8, 1913, p. 448; The Gastric Movements in Hunger, Sept. 27, 1913, p. 1044; The Call of the Empty Stomach, Oct. 4, 1913, p. 1300; The Voracity of Certain Diabetics, Feb. 21, 1914, p. 621; New Facts About Hunger, July 11, 1914, p. 169; Stomach Bitters, Jan. 2, 1915, p. 58. Carlson, A. J.: The Control of Hunger in Health and Disease, Chicago, 1916.

[4] Meyer, Jacob, and Carlson, A. J.: Contributions to the Physiology of the Stomach, XLIII, Hunger and Appetite in Fever, Am. Jour. Physiol., 1917, **44**, 222.

Luxury in Sanatorium Management.—Among the blots on the history of sanatorium operation in the past has been the tendency to expend large sums of money on the elaborate equipment of quarters for officers, physicians, nurses and employees and to give to the officers the choice rooms and the choice locations in the grounds and buildings. The quarters for physicians and employees should be comfortable and adequately roomy, but the best outlook, the best location, the choice of accommodations, if there be a choice, should be given to the tuberculous patients for whom the institution is primarily intended. The pretentious luxury of officers' quarters in some public sanatoriums has been a lasting disgrace to those institutions and to their creators.—G. T. Palmer, in Illinois *Health News*.

Medical Mobilization and the War

THE MEDICAL OFFICER

Between the living and the dead the Army surgeon stands,
And life, oft hanging by a thread, lies in his skilful hands;
A soldier at his country's call, he draws no faltering breath,
But fights that mightiest foe of all, the final victor Death!

To meet so dread a foe he brings the true physician's mind,
Which holds, above all other things, the reverence for mankind:
Did his own brother wounded lie, tho' toward him he would speed,
He would not pass a foeman by, if his the greater need.

Within his breast, to duty true, no shrinking spirit dwells,
Oft has he served, and fallen too, beneath the screaming shells;
The hope to succour and to save, his one ambitious thought;
If honors come to mark the brave, they come to him unsought.

To snatch from ravening Death his prey with dauntless soul he speeds,
And few the words he has to say—his pity speaks in deeds!
The life within him, tense and clear, from brain to finger runs,
Nor does he heed, nor even hear, the roaring of the guns!

This son of science, rarely found applauding crowds before,
For whom no trumpet-blasts resound, too many oft ignore;
Yet he, upon the storm-swept plain intent alone to save,
And wounded scorning all his pain, is bravest of the brave!

—R. H. G. Osborne.

PLASTIC SURGICAL SCHOOL OPENED

The school of plastic surgery recently created by the Surgeon-General was opened at Washington University, St. Louis, October 15, with twenty-six students. Prof. Robert Terry is superintendent of the school and is assisted by officers detailed by the Surgeon-General.

BUREAU OF MEDICAL SERVICE ESTABLISHED

A new medical bureau known as a Bureau of Medical Service of Foreign Commissions has been established by the American Red Cross to meet the call for medical and surgical supplies for the Red Cross commissions in France, Russia, Italy and Serbia. Dr. Richard M. Pearce of Philadelphia is director of the bureau. This bureau will attend to the sending forward of physicians and nurses as required. Drugs and medical supplies to the value of more than half a million dollars have already been shipped to Russia; three detachments of child welfare specialists have been recruited for service with the new Children's Bureau of the Red Cross in France, and the bureau is also furnishing bacteriologists and chemists and other needed personnel for the Red Cross establishments in Paris.

NEWS OF THE TRAINING CAMPS

Colored Medical Officers' Training Camp at Fort Des Moines

The opening of this medical officers' training camp at Fort Des Moines, Iowa, marked a new departure in the policy of the Medical Department of the Army. Heretofore, except in a few isolated cases of medical officers in colored National Guard organizations, the colored medical officer did not exist. With the establishment of a colored division of the National Army, the need for trained medical officers became urgent. Already there were 1,200 colored men in training at the reserve officers' training camp for service with the infantry of the National Army. Among these were about thirty physicians. These were later transferred to the medical training camp and commissioned in the medical section of the officers' reserve corps.

With the men transferred from the line camp as a nucleus, the school was started, August 27. Soon there were 116 men in training. Of this number, twelve are dentists. These officers come from all sections of the country, as far west as California, as far south as Texas and Louisiana, as far north as Maine, and as far east as Massachusetts. They represent nearly every reputable medical school in the country, Harvard, Northwestern, the Universities of Michigan, Southern California and Pennsylvania, Columbia University, Howard, Meharry and many others, including two schools of homeopathy. A large proportion are hospital trained men, fourteen having served internships in one hospital, Freedmen's, a government institution at Washington, D. C.

With Lieut.-Col. E. G. Bingham, M. C., as commandant, and Majors H. C. Maddux, M. C., and T. Victor Keene, M. R. C.; Captains Morrill, M. R. C., and Axline, M. R. C., and Lieutenants Coates, M. C., and Gatewood, M. R. C., as assistants, intensive training in military discipline, drill, Medical Department "paper-work" and administration was begun. Parallel to the officers' training camp there is a training camp for enlisted men of the Medical Department. There are now in the latter camp about 900 men.

The general plan of the course of instruction was similar to that employed in the other training camps. The routine program has been interrupted from time to time with short hikes for practical work in field sanitation. The excellent and extensive system of trenches constructed on the fort by the student officers of the line camp afforded considerable opportunity for practical work in trench sanitation, and in the care and evacuation of the sick from the first line trenches to the rear. In field problems and map reading and drawing, the terrain of the reservation offered interesting situations.

The most pretentious single incident of the camp was the four day demonstration hike in charge of Major H. C. Maddux, M. C. This hike was started Wednesday morning, October 3, and lasted through to the following Saturday. The whole camp marched from Fort Des Moines through the city of Des Moines to the Iowa State Fair Grounds, a distance of 9 miles. The camp was officially designated "Camp Bingham." The marching column consisted of the instructors mounted, followed by the troops in full marching equipment, with a section of litter bearers. A pack train of ten pack mules with full medical combat equipment followed, and the rear was brought up by a squad of military police.

The marching column swung along the country roads and city streets singing and whistling "Tipperary," "Are You From Dixie?" and many other songs dear to their hearts. The march was made in three hours, and not a man fell out; on the arrival at "Camp Bingham" there was not a sore foot. Three motor trucks loaded with field ranges and cooking utensils preceded the marching column, and within half an hour after tents were pitched a hot meal was served to the weary, yet happy men.

The specific duties were so rotated at the camp that each section had instruction in the various activities of field service, camp infirmary work, pack train detachment duties, sanitary squads and military police. Each day a part of the command was taken to the nearby fields and instructed in the establishment of first aid stations, camp infirmaries, litter bearing on the battlefield, and the application of first aid measures. Especial attention was given to instruction in the rapid and careful evacuation of the wounded to the rear, also in the rapid moving of the first aid station. One detachment completely packed the combat equipment on the pack mule in four minutes and fifty-five seconds, and half an hour later set up the first aid station in less time.

The nights spent at the camp were cold and frosty, and the physicians, old and young, fresh from the comforts of modern civilization, found scant comfort resting on the bosom of Mother Earth, covered with two thin blankets. Officers, like enlisted men, carried their entire equipment in blanket rolls on their backs; for the sake of the experience their bedding rolls were left at home. After the first night by rustling straw, hay, leaves and newspapers on which to make their beds, the succeeding nights were spent in greater comfort.

Each night huge camp fires were built, and around them crowded the shivering civilian physicians of yesterday. The early part of the night was spent around the camp fire with tales, songs, prophecies and longings; longings to do their bit in the war and return to their families and firesides.

On the morning of October 6, reveille was sounded at 4:30, and preparations for marching back to the fort were begun. The march was to start at 7 o'clock. At this hour every tent had been struck, grounds policed, and officers and soldiers alike stood awaiting the command "Forward—March."

The camp has not been neglected by distinguished visitors. September 18, Colonel Noble, M. C., visited the camp and reviewed the troops as an official representative of the Surgeon-General. His visit was followed by Colonel Legarde, M. C., who delivered a lecture on the "Newer Developments in Military Surgery."

October 15 was memorable because it marked the closing of the "line officers' camp" and the coming of many distinguished visitors. During the day we were given a very inspiring address by Mr. Emmett J. Scott, former secretary to the late Booker T. Washington, and now special assistant to the Secretary of War. Later in the day we were reviewed by Colonel Munson, M. C., Chief of the Medico-Military Division of the Surgeon-General's Office; Colonel Goodwin, R. A. M. C., and Colonel Charles Dircle of the French Army Medical Corps. So impressed were the latter visitors with the camp that at great personal trouble and inconvenience they returned, October 20, for another visit. During this visit we were given a short address by Colonel Munson, and a lecture on "Sanitation in the Trenches" by Colonel Goodwin. That evening we were given an illustrated lecture by Colonel Dircle of the French Army Medical Corps on "Medical Activities on the French Front." Monday evening, October 22, we were shown "The Activities of Our Medical Corps on the Mexican Border" by Colonel Bingham, in moving pictures.

The purely professional instruction has occupied the latter part of the course. We have had practical demonstrations and moving picture clinics in orthopedic surgery and in the treatment of infected wounds by the Carrel-Dakin method of wound sterilization.

The spirit of the camp epitomizes the spirit of the entire colored race in America, in its deep earnestness and desire cheerfully to do its bit in making the world safe for democracy.

At Fort Benjamin Harrison

CAMP GOSSIP

The chief interest of this camp centers around the permanent assignments of medical officers to various stations in this country and abroad which are now being made.

The conditions in the camp are good, notwithstanding the disagreeable, damp, cold weather. The barracks have been made comfortable by stoves, for which the quartermaster supplies an abundance of coal. One can readily understand that he is not generous enough to supply janitors to build and keep these fires going. That work is done by the orderlies who are detailed daily from among the medical officers.

The principle of learning to care for oneself, which is included in the course of instruction, is beautifully illustrated by the above-mentioned task. These things are all part of the work, and to show how well they are "playing the game" is the fact that, besides acting as janitors, the entire policing of our section of the camp is being done by its members. Not the least of these duties is that of keeping in order the long stretches of intersecting cinder paths which have been laid. Heretofore this policing work has been done by the enlisted men of the field hospitals, who have been in training here. Most of such troops, however, have completed their training and have been sent into active work away from this camp, leaving it to the medical officers to do their own work.

The rumor is abroad that the camp will close at the end of November, and in consequence the work of prepartion is being intensified. Instruction in trench warfare, as it applies to the sanitary troops in actual campaign, is given great importance.

TWENTY-FOUR HOURS IN THE TRENCHES

A number of squads, consisting of twelve medical officers, eleven acting as medical corps men and one as captain, are given a tour of duty of twenty-four hours in the trenches. They participate with troops from all other branches of the service, there for a like purpose, in actual night and day battle maneuvers. Each man of these sanitary squads is equipped with all of the latest paraphernalia for such service, and is obliged to carry out in detail the duties of the position to which he is assigned. Of course, when the medical officers reach France or any of the other battle fronts, they will not perform the duties which are imposed on them as here described. They must be taught, however, what is to be expected of the men whom they will later command, and will learn this the more readily by doing it themselves. Hence in this work at this time they are acting as enlisted men. They are equipped as such on these tours of duty, are rationed as such, and also quartered as such, sleeping in a niche in the trench or on the hard planks in the dugout, curled up together to keep warm. They go "over the top" into "No Man's Land," and drag in the wounded just as if they were in actual battle. In this way they learn the possibilities and the limitations, and thus will be in a position to know what may be got out of their men in the future.

"You ask me about my night in the trenches," said Dr. E. W. Ill of Newark, N. J. "It was very interesting indeed, and I will try to tell you what it was like. At roll call in our company, twelve names were read off for this duty, and I noticed that all of the men chosen were under 30 years of age. These twelve were highly elated at being able to have the experience. We were marched, with Seng, one of our number, in command, to Lieutenant-Colonel Shockley, who told us to get our equipment at the medical supply headquarters, and then our blankets and rations. We each received as equipment a knapsack with a myriad of straps, cords, pockets, etc., and a belt with about twenty little packets of many first aid articles—bandages, cotton, gauze, adhesive plaster, etc. The belt also had many little holes in which to hang the hatchets, canteens and other parts of the equipment. For these things we signed a voucher, making us responsible for their return, as the government is very careful of its possessions.

"Before leaving camp we rolled into our blankets a heavy sweater and an Army slicker, and did it neatly for fear of summary punishment if we did not have it right. We received rations for three meals, consisting of six huge ham sandwiches, two hard-boiled eggs with salt, two bars of milk chocolate, a dozen sweet crackers, an apple and an orange, and we filled our canteens with ice water. We put on our heavy woolen underclothes and our trench coats and shoes, and at last got inside of all the other equipment—haversacks, hatchets, canteens, etc.

"At promptly 3 o'clock in the afternoon we collected our six litters, formed three groups of four men each, and began our 2 mile hike to the trenches, as we thought, heavily laden. On arriving there we found that our packs were about 20 pounds lighter than those of the enlisted men of the line. We reported at battalion headquarters, where two of us were left as reserve. The rest were immediately taken into the trenches, where we were given instructions on our duties, and informed that we would go in promptly at 7. While waiting we finished a part of our rations, with some water from our canteens, spread out our litters, took our blankets and sweaters from our packs, and lay down. It was getting cold and beginning to rain. Three or four large companies of the line, in single file, fully equipped, marched by, not a word being spoken except a muttered oath when some one or other stumbled over a tree stump, as there was no light. At 7 we started, but lost our way once, when we got into a drainage ditch instead of the trench, but at last hooked up with the sergeant, and were led to the first shelter, where, with the aid of a pocket light, we found a comfortable hole in the wall, and wrapped up in our blankets and went to sleep. It was so nice and snug that we almost hoped the sergeant would not find us. He did, however, and we were routed out and proceeded along the zigzag communicating trenches until we got to Shelter No. 5, where we were to spend another two hours. Desultory firing was going on all the time, and a few rockets, which were very pretty, were let off, but no wounded were brought back. Two of us tried to sleep on one litter and accordingly got nothing but crossbars for a resting place. It was becoming much colder, and we were also getting more uncomfortable all the time. At 11 we were aroused again to traverse some more zigzag trenches through the mud and water, until we reached Shelter No. 1, at the front. Here we found two bunks, each about 9 feet long, one above the other, on which we attempted to get some rest. Time dragged on and we had almost given up hope of ever having anything to do when, at 12 o'clock sharp, a great noise informed us that a battle was going on. The sergeant poked his head in and yelled, 'Mac and Ill, there are some wounded to be brought in.' We scrambled out, leaving our blankets behind, and crawled over the top and out to look for wounded. It was very cold by this time, and the ground muddy and soggy, but we knew better than to get too high up, as the combatants were armed with paraffin bullets which some of our companions said 'stung like H——.' I finally encountered a body and said, 'Are you alive?' The man said, 'Yes, but badly wounded in the leg.' I told him to put his arms around my neck and I would drag him in. It was pitch dark, and we encountered rocks, mud, etc., en route, which was, to say the least, disagreeable. At last I saw the sandbags of the top of the trench and thought, 'Well, I will be safe from firing now,' when a flare went up, followed immediately by a fusillade of shots from the 'Germans' at the wounded man and myself. One hit me a stinging blow in the left leg, and I cussed a few times and told my wounded companion to 'scramble for himself.' He did, and we gained the trench without further mishap. The other men of our squad had similar experiences, some being hit in several places. When I got the man back I bandaged up his leg and we transported him to the rear, my own wounds being left undressed. My two other trips were unaccompanied by rifle fire, and I even had time to wrap up and get a little more sleep out in "No Man's Land," safe from the scrutiny of the ever-watchful sergeant.

"Without this actual experience I could not possibly have had other than a vague idea of the duties involved, together with the hardships to be expected. It is needless to say, and I am sure no one will accuse me of being a quitter when I do say it, that I am more than elated that duty in France for me will not be that of the enlisted man of the Medical Corps whom I represented in the battle just described, who goes out not only exposed to infantry fire and bombs, but without any protection whatever. His is the most dangerous work of all, as he is exposed to the fire from both sides. In fact, one of the squads reported on its return that its own first sergeant had been shot twice by our own guards because he was too frightened to halt when ordered to do so; while two other men lost their bearings completely and wandered too far over, where they were captured by the 'Germans.'"

TRAINING CAMP ACTIVITIES

The Commission on Training Camp Activities, appointed last April by the Secretary of War, has issued in pamphlet form a summary of its activities to date. The object of this commission, as stated in the pamphlet, is to supply the normalities of life to a half million young men in the training camps and to keep the surroundings of these camps clean and wholesome. The task is to furnish these young men a substitute for the recreational opportunities to which they have been accustomed, and to prevent and suppress vicious conditions which may arise in connection with the training camps. To carry out these activities the commission is enlisting the services of such existing agencies as the Y. M. C. A., the Knights of Columbus, the Playground and Recreation Association of America, the Travelers' Aid Society, the Young Women's Christian Association and many others. The American Library Association has undertaken the important task of furnishing books, magazines and general library facilities as well as trained librarians for the camps. A special library building is planned for each camp. Recreative athletic work has been placed in charge of a director, and supervision of the work in each camp will be looked after by an official athletic council. The manly art of boxing will be included, and the services of such disciples of the fistic art as James J. Corbett and "Kid" McCoy have been enlisted. Baseball and other athletic games are also provided for. Post exchanges for soldiers, and cooperative stores have been established in each camp. Camp music has been planned, with song leaders, and the singing of songs is especially to be emphasized among the soldiers. A song book, "Songs of the Soldiers and Sailors," has already been published. Dramatic entertainment will also be provided. A fully equipped modern theater building seating 3,000 is being erected at each of the national camps. The organization of programs for these entertainments has been placed in the hands of leading theatrical managers of the country, and the best talent will be employed. The Redpath Entertainment Bureau has already been giving entertainments in the various camps. Educational work has not been neglected. There will be courses in English, French, French geography and other subjects, and an educational campaign in sex hygiene through the agency of the American Hygiene Association and the Y. M. C. A. There will also be a considerable degree of supervision over the recreational activities of the soldiers in the cities and towns adjoining the camps. With the aid of many state (public and semi-public) agencies, the control of prostitution in the neighborhood of the Army camps has been attacked, and already important results have been accomplished in the way of the abolition of "red light districts" and the supression of vice in many of the cities surrounding the Army camps. The personnel of the commission is as follows: Raymond B. Fosdick, New York, chairman; Lee F. Hanner, New York; Thomas J. Howells, Pittsburgh; Marc Klaw, New York; Joseph Lee, Boston; Malcolm L. McBride, Cleveland; Dr. John R. Mott, New York; Charles P. Neill, Washington, D. C.; Lieut.-Col. Palmer E. Pearce, U. S. Army, and Dr. Joseph E. Raycroft, Princeton University, with Jasper J. Mayer, secretary to the commission. The funds to support this great work will come from private subscription through the organization named, from various state, municipal and other organizations in the extension of their regular lines of work, and in some instances from government grants in the way of salaries, etc. Some of the entertainment features are expected to be self-supporting through nominal admission charges. The Navy Department has a similar commission, of which Mr. Raymond B. Fosdick is also chairman. A report of the latter commission is soon to be issued.

NEWS OF THE CANTONMENTS

Thirty-First Division, Camp Wheeler, Macon, Ga.

With the arrival of 10,000 drafted men, the amount of sickness has greatly increased, especially measles. Measles had existed in all regiments for a year continuously. The draft men brought in cases on every train. Fortunately there have been almost no complications or sequelae.

The camp is being visited almost daily by the officers or agents of various committees and organizations interested in the welfare of the Army. Some of these bodies are of real value; others of the visitors never accomplished anything more than making reports.

Pneumonia is the disease of the camp. Fifty-one patients have entered the hospitals, with three deaths to date. Many of the patients are by no means out of danger. The strength of the command has passed the 21,000 mark. The commissioned personnel of the division is now in excess of authorized strength. The enlisted personnel is 75 per cent. strength.

A reception and luncheon was given by Mrs. Charles Holt in Macon for General Steiner, Major Weeden, M. C., and others, Wednesday evening. Many from the camp attended.

Lieutenant Miner of the Sanitary Corps addressed the officers at the medical school on the subject of vice suppression, Thursday. Vice suppression is a live question in this camp. Macon is not at all clean, and there is much venereal disease. Captain McCampbell, M. C., of the Surgeon-General's Office, was also here working along the same lines.

ONE HUNDRED AND SIXTH SANITARY TRAIN

In the assignment of new officers of the Medical Reserve Corps just arrived from the medical officers' training camp, Fort Oglethorpe, the complement of all companies is now complete. Wednesday afternoon, a field problem on a small scale was planned by the division surgeon and carried out with fair success. The participating units were the Sanitary Detachment of the One Hundred and Eighteenth Field Artillery, under Major Taylor, who performed the duties of the regimental surgeon; the Florida and Georgia field hospitals, which furnished sixty men, acting as patients; and Ambulance Company No. 122, under Captain Blackwell, which established the dressing station and evacuated the wounded from the regimental collecting station by litter to the dressing station, and thence by ambulance to a theoretical field hospital established at the camp. While many rough edges were noted and much to criticize was found, all felt that the afternoon was profitably spent.

The weekly social of the officers of the train with ladies was held, Hallo'een. The party took the form of a dinner-dance, dinner being served at 6 o'clock in the mess hall of the One Hundred and Twenty-First Ambulance Company which was very prettily decorated with autumn foliage.

An interesting lecture was given by Lieutenant Miner of the Sanitary Corps, Thursday afternoon, November 1, on the work being done in repression of vice in the cantonment zones.

Many of the officers of the train, with ladies, attended an invitation dance given by the officers of the One Hundred and Twenty-Fourth U. S. Infantry at the Hotel Dempsey, Saturday evening, November 3.

Fortunately the train has so far escaped the outbreak of measles that has been so evident in other sections of the camp. We are "tapping wood."

Seventy-Seventh Division, Camp Upton, Yaphank, N. Y.

The medical work in this cantonment has been dominated during the past two months by the physical examination of the men of the National Army. These men have reached the camp in increments of at times from 2,000 to 3,000 in a single day, and orders have required that this entire number should be examined, and their necessary papers made out in one day so that they might be examined, mustered in, assigned to organizations and in uniform the third day after their arrival, inclusive. The amount of stress imposed on the medical staff by the rapidity of this work has placed a severe tax on both officers and men and has obligated to a certain extent relative neglect of other work, such as regular drill and instruction.

The camp has been singularly free from serious infectious diseases. Measles, which has been and still is one of the most serious contagions in military encampments, has been present, but ten cases only have occurred, eight of which occurred in a single organization and apparently from a single focus of infection. No secondary cases have as yet developed, and at present a single patient remains in hospital convalescing. No diphtheria cases have been discovered and yet the Schick test which was applied in about 3,000 instances showed the usual percentage of susceptibility to this disease. One man with pertussis entered the camp with an increment of the National Army, but there have been no secondary cases. One case of mumps only has been reported and there have been no instances of either typhoid or paratyphoid fever, though sporadic cases were fully expected. Examinations for carriers are under way, but thus far results have been fortunately negative.

Owing to the fact that the base hospital unit is still building and untenantable, this institution has been housed in ordinary barracks, frequently moving from one to another as they have been displaced by the military organizations normally assigned to these buildings. Within the next ten or fourteen days it is expected that the most essential buildings of the base hospital will be in such condition that a last move may be to this unit of over seventy buildings which in every way is ideally adapted to the needs of the service. The buildings, although hastily constructed, are well made, conveniently arranged and equipped with practically every convenience to be found in the most modern civil hospitals.

A regular course of lectures and instruction on military medicine has been started under the supervision of Lieutenant-Colonel Reynolds, the division surgeon, and additional arrangements have been made for clinical demonstrations, papers and lectures by the various departments of the hospital. Regular sessions of a base hospital medical society under the direction of Major Jay Whitham, commandant of the base hospital, have been projected, and in addition to the work presented by the various members of the staff, members of the profession from New York City and elsewhere will be on our programs. The regular meeting of the medical section of the New York Academy of Medicine in New York City was given over to the staff of the Upton Base Hospital on October 16, and by invitation of the president of the New York Academy of Medicine the program of the February open meeting of the academy will be given by members of the various staffs of this hospital.

The members of the dental staff at Upton are holding regular meetings of a dental society in which the program and clinics are given both by members of the local staff and by outside talent. The location of this camp, so accessible to New York, has made it possible to keep these activities of a very high scientific grade. The hospital library will include all modern standard textbooks and all the current native and foreign journals will be at hand.

Eightieth Division, Camp Lee, Petersburg, Va.

There are now 175 medical officers on duty at Camp Lee, only three of whom are of the regular Medical Corps, Division Surgeon Lieut.-Col. Thomas L. Rhoads, M. C., Division Sanitary Inspector Henry P. Carter, M. C., and Major Ferdinand Schmitter, M. C., commanding officer of the base hospital. Fortunately for these three medical officers and the welfare of the Eightieth Division, nearly all of the 175 medical reserve officers have had training at one of the medical officers' training camps, the greater number of them having been at Camp Greenleaf, Ga. The training there was of great assistance, though a marked change in the character of the work took place at Camp Lee. Lieut. S. W. Tunnell of Philadelphia describes his first few days quite graphically:

> At 8 a. m., I received orders to report to Colonel ——, at depot brigade. At 8:30 I reported, and was instructed to be prepared to examine three battalions, 1,800 men that were expected at noon, in just three hours and a half. Note.—Absolutely barren, unfinished buildings, supplies at 2 miles' distance, roads muddy to the junction of the lower to the middle third of leg, no transportation.
>
> 10:30 a. m. (two hours later): "Sir, we are prepared to begin examinations." On receipt of order assigning me as surgeon to the depot brigade, I walked for one-half hour through the most affectionate mud that one could imagine and located my commanding officer. Lieutenant, "Reporting for duty, Sir." Six little words were all that I volunteered to exchange for the following volley fired after one squint at a little note book. "You are assigned to me as senior surgeon. You will have as your assistants [here he named two other medical officers]. We expect 1,800 men at noon today and you must be prepared to examine them. There is the infirmary over there [pointing to a two story wooden building]. It is absolutely empty, in fact it isn't finished, and there is no equipment available. You may borrow, beg or steal (borrowing without knowledge of owner), but you must be prepared to begin examinations at 12 o'clock."
>
> There was not the slightest doubt in my mind that the colonel meant just exactly what he said. I then conversed two more words, "Yes, sir," saluted and departed. About that time the other two officers reported and we were off. In five minues we had twelve empty nail kegs which we officially took as office chairs, sent one officer to the medical supply depot, a mile and a half away, for triple typhoid vaccine, smallpox vaccine, and an emergency recruiting outfit. We sent another officer with a requisition for stationery supplies to the quartermaster 2 miles away. This left four officers. Two gas pipes immediately became hammers, nails became plentiful when a dental surgeon eased a carpenter's toothache by plugging a cavity with a piece of cotton from a nearby field with a nail. In fact, that is how we learned where the nails were. Scrap boards spontaneously jumped into table tops and a leg flew on each corner. We walked through the officers' quarters, and as there was no one at home, we borrowed two more tables and two benches. We found a tomato can and made a half pint of ink with some ink tablets which an officer carried for his fountain pen. We found a plumber working close by with a foreign body in his right eye, and while I was removing the particle some one of the officers borrowed a dozen plugs for gas pipes from his kit, which we used for ink wells. To our fountain pen brigade we added a dozen penholders made with a penknife from sticks in case there were no others available. We gathered some more cotton from the field and stole a cake of soap to cleanse the arms from vaccinations. We telephoned to an ambulance company to borrow twelve enlisted Medical Department men to use as clerks and help run the infirmary. About this time one of the officers returned from the medical supply depot with our vaccines, recruit outfit, cotton syringes, eye card and finger print outfit. The other officer returned with real stationery, and we then proceeded to consolidate the ground that we had gained. In two hours' time we had generated our equipment from nothing and established a system which later examined 329 men in one day.
>
> The draft men did not begin to arrive until about 5 o'clock in the afternoon, when we immediately examined for contagious disease. The physical examinations we postponed until morning because we had no lights. Our borrowed enlisted Medical Department personnel arrived that night. We drew their beds from the supply officer and had them attached to the battalion for mess. Each man immediately became a clerk, assigned to their desks and instructed in their work. The following morning our complete force reported for duty at 7 o'clock, and the wheels of a polished system began to grind out examinations.

FIELD HOSPITAL NO. 318

This company was organized, July 1, 1917, in the medical officers' training camp at Fort Oglethorpe, Ga., by Lieut.-Col. R. L. Carswell, M. C., provisional director of field hospitals, and was placed in charge of Lieutenant Comfort, N. G. Conn., assisted, after July 10, by student commissioned officers. Capt. Elliott B. Edie, M. R. C., was made commanding officer, August 6, and the commissioned personnel completed by assignment of Capt. William D. Hunter, M. R. C.; Lieut. J. H. Boyles, M. R. C.; Lieut. L. F. Boland, M. R. C.; Lieut. M. I. Mendeloff, M. R. C., and Lieut. P. J. Bean, M. R. C. The enlisted personnel was received from the recruit camp.

A field hospital with its horses and wagons, fourteen tents and field kitchen looks so much like a Wild West show that the observer instinctively looks for the Indians and the Deadwood stage coach. The company participated in two reviews during the last week of August. These were regarded as part of the graduation exercises of the medical officers' training camp, and every officer and enlisted man marched past the reviewing officers with a feeling of pride that he was a member of the first class to graduate from Colonel Page's university. Field Hospital No. 318 entered the National Army cantonment at Camp Lee, Va., August 27, being one of the few organizations with an enlisted personnel. The company was called on for details of men for special duty, varied in kind, but all a part of the great task of preparing for the reception of the selected men. This work now being completed, the "details" have been returned and the reunion of the company was celebrated in the company mess rooms on the evening of October 25. Short talks were made by the officers, and a musical entertainment was given by the men. Announcement was made of the final result of the Liberty Loan campaign. The per capita subscription of the company was $81, nearly $20 more than Camp Lee's average. It is expected that the sanitary train will be completed about November 1 by the organization of three field hospitals and one ambulance company, with officers from Fort Oglethorpe and men from the depot brigade. The officers and men of the Three Hundred and Eighteenth look forward with pleasure to a resumption of regular training in the duties of the sanitary soldier, and hope to be of service in the instruction of the new companies.

AMBULANCE COMPANY NO. 319

This organization, now a unit of the Three Hundred and Fifth Sanitary Train, Eightieth Division, had its origin in a persistent and insistent appeal of Richmond chapter, American Red Cross, through its president, at the time Henry W. Anderson, now in charge of the Roumanian commission. This appeal thus forcefully made to the headquarters of the American Red Cross at Washington during the earlier part of July received favorable consideration, and, July 10, authority was granted by Lieut.-Col. C. H. Connor, in charge of the organization of all the Red Cross ambulance companies, to Richmond chapter to form and equip a unit, to be known as the Red Cross Ambulance Company No. 46.

Pursuant to an order from the division surgeon, in accordance with instructions from the Surgeon-General's Office, October 15, numbering of the ambulance company was adjusted. No. 46 ceased to be, and the number 319 was given. The officers of the organization were chosen with the object of furnishing the command with men especially fitted to instruct the personnel along the lines that make for excellence in ambulance work. The commanding officer, Lieut. C. H. Lewis, is from Richmond. The junior surgeons are Lieut. George S. Hurt, Kentucky; Lieut. Julius J. Hulcher, Richmond; Lieut. Oliver C. Brunk, Richmond, and Lieut. Ray A. Moore, Richmond. The enlisted personnel is as diversified as it is remarkable intellectually. Great care was exercised in the selection of these men for this service, and as a result experts from every conceivable line of human endeavor can be found: mechanics, chauffeurs, carpenters, pugilists, lawyers, physicians, chemists, clerks, football artists; a fat man so fat that S. O. is necessary to outfit him; thin men so thin that they would have to suffer a fracture to reduce.

AMBULANCE COMPANY NO. 317

Ambulance Company No. 317 was organized as Red Cross Ambulance Company No. 43 of Raleigh, N. C. The original promoters were John G. Allen, Raleigh, N. C., and Kenneth R. Ellington, New York (a Tar Heel by birth). The former is now a first lieutenant in the Signal Corps, and the latter an ensign in the Navy.

The officers are Charles L. Scott, Sanford, N. C., University of Maryland, 1899, commissioned as First Lieutenant, M. R. C., June 8, 1917, and Captain, M. R. C., August 21; Vance P. Perry, M. C., Va., 1916, Kinston, N. C., commissioned First Lieutenant, M. R. C., in July; Dewitt D. Clark, Clarkton, N. C., commissioned First Lieutenant, August 1, and Neil G. Nicholson, M. C., Va., 1917, Mount Gillead, N. C., commissioned First Lieutenant, Sept. 1, 1917.

The volunteer enlisted men are from middle and eastern North Carolina, and range in ages from 18 to 40, representing some of the best blood and oldest families as well as individual specimens of manhood and intellect.

Eighty-Fourth Division, Camp Zachary Taylor, Louisville, Ky.

Seven companies of the Three Hundred and Thirty-Sixth Infantry are quarantined on account of measles. Hundreds of relatives visited the camp, Sunday, but were unable to get closer to the barracks than to talk to the men across a little ravine back of Company F's quarters. Several thousand visitors, many bearing flowers and edibles for the sick soldiers, visited the base hospital. Four cases of cerebrospinal meningitis have been reported from the regiment. The medical detachment of the regiment under the command of Capt. C. C. Osborn is working night and day to stop the epidemics of measles and meningitis. Lieut. J. D. Holston daily examines more than 2,000 men, looking for suspects. Lieuts. Samuel R. Laubscher and Charles H. Davis are kept busy with a corps of men spraying the throats of every man in the regiment to prevent infection.

The office building and barracks which have been constructed for the use of the British and French officers detailed to the camp were completed last week.

Physicians, social workers and laymen interested in the treatment of social questions met at the Seelbach Hotel, October 31, to discuss steps to be taken for the prevention and treatment of venereal diseases among the soldiers at Camp Zachary Taylor. The meeting was called by Edward H. Griffith, representative of the War Department. One of the chief speakers was Col. John H. Allen, division surgeon, who told of the work already done by the authorities at the camp toward the suppression of disease, and Major L. D. Frick, who urged the reporting of vice diseases by physicians.

Col. S. B. Pearson holds the record for rapid promotion from Captain to Lieutenant-Colonel since arriving at Camp Zachary Taylor. He is a cavalry officer, twenty-two years in the service, and is camp quartermaster. Under his direct supervision is the camp bakery, in which the principal article of the soldiers' food is prepared. Every day the force under him bakes 10,000 loaves of white wheat bread, enough to feed 30,000 men three times a day. The ration allows each man a pound of bread a day, which it has been found is slightly in excess of the actual consumption. Once a week the student bakers prepare what is known as war bread, a loaf that has a heavy crust and weighs 4 pounds. This heavy crust has been found by the French to facilitate shipment, as it prevents breaking and crumbling.

BASE HOSPITAL ACTIVITIES

Mrs. Leonard Wood, wife of Major-Gen. Leonard Wood, and Mrs. Draper, of New York, were recent visitors at Camp Zachary Taylor, in the interest of the Red Cross. They expressed pleasure in finding the base hospital in such excellent condition. Mrs. Wood complimented the site on which the camp is located, and said she considered it an ideal place for the training of soldiers. They are visiting the army camps of the United States in the interest of the Red Cross.

The base hospital laboratory is now fully equipped, and it is doing excellent work. All patients with pneumonia are examined to identify the type of pneumococcus. In two cases the types have been identified as I and IV, and the appropriate serums used. An ample supply of white mice has been obtained for this work.

A most comprehensive plan of examination has been outlined of all the drafted men from eastern Kentucky for hookworm, with probably an examination of all of the Kentucky troops later on. This will be done under the supervision of Captain Fox. It is estimated that 200 specimens can be examined a day, and those men in whom hookworm is found will later be examined by Major Hamburger physically and by the psychologic board also, a careful record being made of each case.

A number of interesting cases are under observation in the base hospital. Several cases of cross-infections have been encountered. One man had a very severe discoloration of his skin from a catarrhal jaundice, and on the eighth day was admitted to the contagious ward with measles, presenting a measles rash of peculiar color. Another patient had mumps with a bilateral orchitis following, and later a typical typhoid. To this man two prophylactic injections of typhoid vaccine had been given. One man had a severe cardiospasm, with subsequent relief from esophageal dilatation. An officer was admitted with severe bleeding from a duodenal ulcer. The roentgen ray is being used to great advantage in all these gastric cases.

Owing to the number of cases of measles, four isolation wards have been opened. The following is a record of the severe cases in the hospital, November 4: meningitis, 4; measles, 94; pneumonia, 21; typhoid fever, 4; mumps, 12, and diphtheria, 1. Two perfectly well meningitis carriers have been found and isolated.

It is the purpose of Major Hamburger to have all tincture of digitalis used at the base hospital standardized on the cat by the method of Hatcher and Eggleston, and as outlined by Lieut. Willard J. Stone. This will be done by Prof. C. O. Zahner in the Department of Physiology of the University of Louisville Medical Department.

SPECIAL EXAMINING BOARDS

A board of psychologic examiners has been convened at Camp Zachary Taylor, which is one of the four camps chosen by the Medical Department of the Army for this work to be done in. The entire army here will be standardized by putting each man through certain physical and mental tests, so that they may be properly classified, artisans properly assigned, etc. More will be written of this work later. It is under the supervision of Lieut. Marion R. Trabue, S. C.

All of the men are now being examined by a special board of ten examiners for tuberculosis under the supervision of Capt. M. J. Lichty.

PERSONALS

Major Worthington has instituted food conservation in the officers' mess at the base hospital, meatless and wheatless days, and certain meals without butter. Those who help themselves to butter in quantities too bounteous, and leave some uneaten, are specially reported by the mess orderlies.

An order has been issued prohibiting officers and enlisted men from entering certain districts in Louisville, and has been read to each organization in camp. Any man found in these districts will be arrested by the members of the provost guard or military police. One of the unused city police stations has been equipped and used as headquarters for the military police.

Dr. Fred L. Koontz, M. R. C., spent a few hours in Louisville last week en route from Fort Oglethorpe to Philadelphia, to which city he has been ordered for a course of intensive training in head surgery at the University of Pennsylvania Hospital under Drs. Frazier and Spiller.

Dr. John B. Richardson has been ordered to Bellevue Hospital for a course in fractures.

Miss Helen Pond of Framingham, Mass., a dietitian, has reported to Major Worthington of the base hospital. She is a welcome addition to the staff of the hospital.

Lieut. James W. Bruce, M. C., Louisville, was married at 5:30, November 5, to Miss Edith Campbell, daughter of Mr. and Mrs. Charles D. Campbell, at Christ Church Cathedral. The wedding, originally set for December, was hurried because of Lieutenant Bruce receiving traveling orders.

Eighty-Fifth Division, Camp Custer, Battle Creek, Mich.

LIBERTY LOAN

The "Liberty Loan" proved of considerable interest from a competitive standpoint during the last week. The division subscribed $1,389,750. This figure is high, considering that the division is at less than half strength. The sanitary personnel of the division has accomplished a wonderful showing. Base hospital, $21,050; field hospital, $29,300; ambulance companies, $38,050. In the field hospitals, Field Hospital No. 340, under the command of Capt. J. D. McGaughey, showed the largest subscription average of $103 for each man in the company. The general average for all field hospitals was over $97 per man.

SANITARY TRAIN

The medical personnel of the sanitary train is now complete, so that the training of the sanitary troops is progressing rapidly. Although the rainy weather has in some respects handicapped outside work, it has in no way brought it to a complete standstill. The men seem to get along just as well in the rain as they do on clear days, due entirely to the unusual enthusiasm that seems to exist among them. It is not such a difficult task as one might expect in training these men in the duties of nurses, the operating room assistants and ward managers. They seem to grasp the subject pertaining to medicine and surgery very rapidly indeed and in quizzes seem to answer up as well as some medical students in their first and second years. There is no doubt that these men will be ready to fill the various places when the time comes for active service.

NOTES

Major Wood, commanding officer of the base hospital, read a paper before the Kalamazoo Medical Society, October 23, on "The Organization of the Base Hospital." His paper was exceedingly interesting and covered the matter thoroughly in every detail. The meeting was well attended, both by the members of the society and officers from the camp.——Majors Irons and Frick of the base hospital were in Chicago attending the meeting of the Clinical Congress.——Capt. W. P. Nicolson, Jr., of the 338th Ambulance Company recently spent two days in Chicago.

Eighty-Seventh Division, Camp Pike, Little Rock, Ark.

A recent order transferring enlisted men from this cantonment, in order to fill up the necessary quota in the National Guards of their respective states, has wrought temporary havoc with the enlisted personnel of the sanitary train. The present indications are that with the exception of the Red Cross ambulance companies and a small detachment of regular Army men brought here from Fort Riley, Kan., that the train will be compelled to part with most of its men.

Major R. H. Davies of Chicago, who is assistant adjutant of the sanitary train and acting director of field hospitals, is living in hopes that the contingents from the northern camps who are to be brought here will be of such excellence as to more than balance the loss of men and training time entailed by this transfer.

November 1 has been officially set as the date for the beginning of a comprehensive course of training for the enlisted and commissioned personnel of the medical department in this division. Major R. H. Davies is to have general supervision of the training under the direction of Lieut.-Col. Robert M. Thornburg, division surgeon, and his assistant, Major R. R. Jones of Fort Oglethorpe and Pittsburgh. The course in gas defense, which will be very complete, will be given by Captain Gussow, who is attached to the division surgeon's office and sent here from the school for gas defense at Fort Sill, Okla.

Colonel Chamberlin of the Surgeon-General's Office made a sanitary inspection of Camp Pike, Sunday, October 28. It would have been difficult to find anything resembling dirt in the sanitary train area for some hours before his arrival.

A lieutenant-colonel, a line officer, who visited the area a few days ago, said that this section of the camp had made more elaborate and successful effort at beautifying their surroundings than any other part of the camp which he had visited.

It "spoke well" he said for the "spirit" of the medical personnel. One thing is certain, no branch of the service has shown a greater willingness to do their full duty than have the medical profession who have left their "all" and have entered on this strenuous and in a way very unnatural existence.

One is vividly impressed with the difference between an enlisted personnel acquired by choice and one acquired by draft in the comparison of the Red Cross Ambulance Company of Topeka, Kan., now a part of the sanitary train, with the material many of the companies here may have to work with. This company is commanded by Lieutenant Lerrigo of Topeka, a member of the Kansas State Board of Health and an author of note. His four junior officers are all graduates of Washburn College and a large percentage of the 118 members of this company are from the same institution.

These men give a "sing" every Tuesday night in their barracks, which is very largely attended by the officers of the sanitary train.

Last week Liberty Loan Day was observed by the 312th Sanitary Train. The exercises were in charge of Capt. J. B. Steele, M. R. C., of Chattanooga, and an address was delivered by a prominent attorney of Little Rock. Over $10,000 was subscribed by the members of the train.

Health conditions are in general good in the Eighty-Seventh Division. The epidemic of measles seems to be abating somewhat.

Among those who have been notified of their promotion recently are Lieut. R. H. Davies of Illinois and Capt. J. W. Thornton of Iowa to the rank of Major, and Lieuts. J. B. Steele of Tennessee, A. J. Lyons of Illinois, C. A. Richards of Wisconsin and Paul R. Howard of Nebraska to the rank of Captain.

DISEASE CONDITIONS AMONG TROOPS IN THE UNITED STATES

Extracts from Telegraphic Reports Received in the Office of the Surgeon-General for the Week Ending Oct. 26, 1917

1. Total strength of troops 1,000,971
   Admission rate per 1,000 (disease only) ....annual 927.5
   Non-effective rate (all causes) 22.8
2. National Guard-strength 315,717
   Admission rate per 1,000 all camps (disease only)..annual 1,056.8
   Non-effective rate all camps (all causes) 26.1

The following camps show admission rate for disease higher than average: Wheeler, Beauregard, A. L. Mills, Cody, Kearney, Sevier, Doniphan, Shelby and Bowie.

The following camps showing non-effective rate higher then average: Beauregard, A. L. Mills, Wheeler, Shelby, MacArthur and Bowie.

3. National Army—strength 413,717
   Admission rate per 1,000 all camps (disease only)..annual 900.4
   Non-effective rate all camps (all causes) 18.7

The following camps show admission rate for disease higher than average: Pike, Dix, Travis, Jackson, Lewis and Dodge.

The following camps show noneffective rate, all causes, higher than average: Pike, Lewis, Dix, Dodge and Travis.

4. Venereal Diseases:

Admission rate regulars	63
Admission rate National Guard (camps)	[illegible]
Admission rate National Army	[illegible]

The following camps, National Guard, have rate above average: Wheeler, Sheridan, Sevier, A. L. Mills, Logan and Bowie.

The following camps, National Army, have rate above average: Pike, Jackson, Dix, Lee, Travis, Lewis and Gordon.

5. Number of cases of pneumonia	[illegible]
Highest number in any one camp	Taylor [illegible]
Number of cases of meningitis	[illegible]
Highest number in any one camp	Dodge 4

6. SPECIAL DISEASES REPORTED DURING THE WEEK ENDING OCTOBER 26, 1917

Camps	Pneumonia	Dysentery	Malaria	Venereal	Paratyphoid	Typhoid	Measles	Meningitis	Scarlet Fever	Strength of Command
Wadsworth	..	..	..	[illegible]	..	..	..	..	..	[illegible]
Hancock	..	..	..	[illegible]	..	..	..	1	..	[illegible]
McClellan	1	..	..	[illegible]	..	..	3	1	..	[illegible]
Sevier	[illegible]	..	2	[illegible]	..	..	[illegible]	1	..	[illegible]
Wheeler	[illegible]	1	[illegible]	[illegible]	..	..	[illegible]	1	..	[illegible]
MacArthur	[illegible]	1	..	2	..	..	1	..	..	[illegible]
Logan	[illegible]	..	[illegible]	[illegible]	1	..	..	..	1	[illegible]
Cody	[illegible]	[illegible]	..	[illegible]	..	..	3	..	..	[illegible]
Doniphan	2	..	4	[illegible]	..	..	1	..	..	[illegible]
Bowie	[illegible]	..	..	[illegible]	..	11	[illegible]	..	..	[illegible]
Sheridan	3	..	..	[illegible]	..	..	[illegible]	1	..	[illegible]
Shelby	[illegible]	1	3	[illegible]	..	..	[illegible]	2	..	[illegible]
Beauregard	3	..	1	[illegible]	..	..	[illegible]	..	..	[illegible]
Kearny	4	..	..	3	..	..	1	..	..	[illegible]
Greene*	..	..	..	..	..	..	..	..	..	......
A. L. Mills	1	..	4	[illegible]	..	..	1	..	..	[illegible]
Devens	3	..	1	7	..	1	4	..	..	[illegible]
Upton	1	..	..	[illegible]				..	..	[illegible]
Dix	1	..	..	[illegible]	..	..		..	..	[illegible]
Meade	..	..	..	[illegible]	..	..	..	..	..	[illegible]
Lee	..	1	..	[illegible]	..	..		2	..	[illegible]
Jackson	5	12	6	[illegible]	..		[illegible]	..	..	[illegible]
Gordon	1	..	..	[illegible]		..	[illegible]	..	..	[illegible]
Sherman	[illegible]	1	..	[illegible]	..	..	[illegible]	..	..	[illegible]
Taylor	[illegible]	..	..	[illegible]	..	..	[illegible]	..	..	[illegible]
Custer	1	..	..	6	..	..	[illegible]	..	..	[illegible]
Grant	[illegible]	..	..	[illegible]	..	..	..	..	1	[illegible]
Pike	[illegible]	2	[illegible]	[illegible]	..	..	[illegible]	2	..	[illegible]
Dodge	3	..	..	[illegible]	..	..	3	4	..	[illegible]
Funston	[illegible]	..	1	[illegible]	..	..	1	4	1	[illegible]
Travis	[illegible]	..	2	[illegible]	..	..	..	..	..	[illegible]
Lewis	1	..	..	[illegible]	..	..	1	1	..	[illegible]

* Not reported.

	Regulars, U. S. Army, in U. S. [illegible]		All Troops in U. S. week ending Oct. 26, 1917		Nat'l Guard, All Camps, week ending Oct. 26, 1917		Nat'l Army, All Camps, week ending Oct. 26, 1917	
	Cases	Rate	Cases	Rate	Cases	Rate	Cases	Rate
Admissions, disease only, annual rate per 1,000	....	[illegible]	....	[illegible]	....	[illegible]	....	[illegible]
Pneumonia	....	[illegible]	[illegible]	[illegible]	56	15.5	[illegible]	11.5
Dysentery	....	[illegible]	[illegible]	[illegible]	3	0.5	14	1.7
Malaria	....	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	[illegible]	5.1
Venereal	....	[illegible]	[illegible]	[illegible]	[illegible]	221.5	[illegible]	[illegible]
Paratyphoid	....	[illegible]	0	0	2	0.1	0	0
Typhoid	....	[illegible]	0	0	[illegible]	1.5	1	[illegible]
Measles	....	[illegible]	59	[illegible]	477	[illegible]	[illegible]	[illegible]
Meningitis	....	[illegible]	3	[illegible]	8	[illegible]	12	1.6
Scarlet fever	....	[illegible]	15	[illegible]	1	0.1	[illegible]	0.2

7. Deaths by Causes:

Pneumonia, lobar	22
Cerebrospinal meningitis	6
Chronic interstitial nephritis	1
Parenchymatous nephritis	1
Acute nephritis	1
Tubercular meningitis	1
Diabetes mellitus	1
Encephalitis	1
Gastritis, toxic	1
Peritonitis	1
Appendicitis	1
Erysipelas	1
Anesthesia (ether)	1
Abscess, multiple, right kidney	1
Suicide	5
Traumatism by firearms	1
Traumatism by automobile	1
Traumatism by crushing	1
Traumatism	1
Surgical shock	1
Cause not reported	2

ORDERS TO OFFICERS OF THE MEDICAL CORPS

Major **EDWARD W. LAZELL**, Colorado N. G., specialist in nervous and mental diseases, to be relieved from duty with Field Hospital Company No. 4, Camp Mills, Garden City, L. I., N. Y., and to report in person *to the commanding general of the camp hospital* and to the commanding officer of Base Hospital No. 36, *United States Army General Hospital No. 1, New York, N. Y.*, for duty in his specialty.

Lieut.-Col. **GEORGE N. CRABTREE**, U. S. Army, retired, now on duty as assistant chief surgeon, Aviation Section, Signal Corps, U. S. Army, Washington, D. C., in addition to his present duties to be assigned to temporary duty as *Attending Surgeon, Washington, D. C.*, during the absence of Lieut.-Col. Theodore C. Lyster, Medical Corps.

Major **WILLIAM K. BARTLETT**, now at Walter Reed General Hospital, Takoma Park, D. C., to be relieved from station at Fort Des Moines, Iowa, and directed to report in person *to the commanding officer at Walter Reed General Hospital, Takoma Park, D. C.*

Major **CHARLES E. DOERR** upon the arrival of Major Osgood at Fort Ontario, N. Y., to be relieved from duty with Field Hospital No. [illegible], Fort Ontario, N. Y., and directed to proceed *to Fort Ethan Allen, Vt.*

Major **BENJAMIN B. WARRINER**, now on duty in connection with aviation, to be assigned *to duty with the Aviation Section, Signal Corps at S. C. Aviation School, Mineola, L. I.*

Lieut. **NICHOLSON F. CURTIS**, now on duty in connection with aviation, to be assigned *to duty with the Aviation Section, Signal Corps, at S. C. Aviation School, Mineola, L. I.*

Major **JOHN T. AYDELOTTE** to be relieved from duty at Fort D. A. Russell, Wyoming, and directed to proceed *to Fort Sam Houston, Texas.*

Lieut. **JAMES I. GLOAT** to be relieved from duty at Fort Bliss, Texas, and directed to proceed *to New York, N. Y., Port of Embarkation.*

Major **EDGAR D. CRAFT**, U. S. Army, retired, to be relieved from duty at Camp Dodge, Des Moines, Iowa, on arrival of Major Alexander T. Cooper, Medical Corps, and directed *to report by wire to the commanding general, Western Department, for assignment to duty.*

Major **SIDNEY L. CHAPPELL**, now on duty at Fort Benjamin Harrison, Ind., to be directed to proceed *to Madison Barracks, N. Y.*

Lieut. **GERALD C. BATES**, N. G., Adrian, Mo., to be ordered to active duty and directed to proceed to Fort Sill, Oklahoma, and report in person *to the commanding general, Camp Doniphan*, that place, for duty.

Major **JOHN P. FLETCHER**, now on duty at the Motor Ambulance Depot, Louisville, Ky., *to proceed to Washington, D. C.*, and report in person to the Surgeon-General of the Army for consultation.

Major **CHARLES T. KING** to be relieved from duty with the 57th Infantry, Fort Sam Houston, Texas, and directed to proceed *to Camp Mills, Garden City, L. I., N. Y.*, for duty as commanding officer of the base hospital.

Lieut. **LLOYD E. TEFFT** to be relieved from duty at Fort Grant, Canal Zone, and directed to proceed *to Camp Mills, Garden City, L. I., N. Y.*

Capt. **HARRY J. O'BRYAN**, N. G., Watertown, S. D., *to proceed to Fort Snelling, Minn.*

Major **WILLIAM B. BORDEN** to be relieved from duty at Madison Barracks, N. Y., and directed to proceed *to Fort Benjamin Harrison* for the purpose of organizing and commanding Hospital Train 20.

Major **JOHN W. MEEHAN** to be relieved from duty at Syracuse, N. Y., and directed to proceed *to Fort Benjamin Harrison*, to organize and command Hospital Train 21.

To report before the president of the board appointed in Paragraph 19, Special Orders, No. 50, War Department, March 2, 1917, *for examination for promotion*, Col. **HENRY D. SNYDER**, office of the Surgeon-General of the Army, Washington, D. C.; Majors **WILLIAM K. BARTLETT**, Walter Reed General Hospital, Takoma Park, D. C.; **WILLIAM A. DUNCAN**, office of the Surgeon-General of the Army, Washington, D. C.; and **PAUL L. FREEMAN**, Fort Meyer, Va.

Major **HERBERT C. GIBNER**, now on duty in the Hawaiian Department, to be directed to report to the president of the board to be convened by the commanding general, Hawaiian Department, for examination for promotion.

Col. **ALBERT E. TRUBY**, now on duty in the Panama Canal Department, to report in person to the president of the board to be convened by the commanding general, Panama Canal Department, for examination for promotion.

To report to the president of the board to be convened by the commanding general, American Expeditionary Force, France, for examination for promotion, Col. **JAMES R. CHURCH**; Lieut.-Cols. **CHARLES L. FOSTER**, **JAMES D. HEYSINGER** and **JOSEPH F. SILER**; Majors **THOMAS W. BURNETT**, **ROBERT M. CULLER**, **LUCIUS L. HOPWOOD**, **CLEMENS W. McMILLIAN**, **HENRY J. NICHOLS**, **OMAR W. PINKSTON**, **GUY V. RUKKO**, **ARTHUR N. TASKER** and **HARRY H. VAN KIRK**.

To report to the president of the board to be convened by the commanding general, Western Department, for examination for promotion, Col. **ELMER A. DEAN**, Presidio, San Francisco, Calif.; Lieut.-Col. **WILLIAM H. TEFFT**, Fort Douglas, Utah; and Major **WILLIAM R. DAVIS**, Fort Rosecrans, Calif.

To report to the president of the board to be convened by the commanding general, Central Department, for examination for promotion, Cols. **PERCY M. ASHBURN**, Fort Benjamin Harrison, Ind.; and **HENRY S. GREENLEAF**, Fort Snelling, Minn.; Lieut.-Cols. **HENRY F. PIPES** and **GIDEON McD. VAN POOLE**, Fort Benjamin Harrison, Ind.; Majors **HENRY C. PILLSBURG**, Fort Riley, Kan.;

WILLIAM S. SHIELDS, Chicago, Ill.; FRANK W. WEED, Camp Funston, Fort Riley, Kan.; HOWARD H. BAILY, Camp Grant, Rockford, Ill.; and WILLIAM A. WICKLINE, St. Louis, Mo.

To report to the president of the board to be convened by the commanding general, Eastern Department, for examination for promotion, Col. FRANCIS M. C. USHER, Fort Slocum, N. Y.; Lieut.-Cols. ORVILLE G. BROWN, Camp Mills, Garden City, L. I., N. Y.; JOHN R. BOSLEY, Fort Ontario, N. Y.; SAMUEL M. DeLOFFRE, Plattsburg Barracks, N. Y.; GEORGE F. JUENEMANN, Reorganization Camp, Gettysburg, Pa.; HENRY D. THOMASON, Fort Ontario, N. Y.; Majors WILLIAM C. DAVIS, Camp Dix, Wrightstown, N. J.; CHARLES L. GANDY, Allentown, Pa.; PAUL W. GIBSON, New York City; LOUIS H. HANSON, Syracuse, N. Y.; HARRY G. HUMPHREYS, Fort Hancock, N. J.; EDGAR C. JONES, Newport News, Va.; FREDERICK E. MACY, Fort Jay, N. Y.; FERDINAND SCHMITTER, Camp Lee, Petersburg, Va.; and WILLIAM W. VAUGHAN, Allentown, Pa.

To report to the president of the board to be convened by the commanding general, Southern Department, for examination for promotion, Lieut.-Cols. WILLIAM P. BANTA, Nogales, Ariz.; ROBERT L. CARSWELL, Fort Sam Houston, Tex.; and ROBERT C. LOVING, San Antonio, Tex.; Majors CLARENCE L. COLE, Fort Sam Houston, Tex.; and EIDE F. THODE, Fort Clark, Tex.

To report to the president of the board to be convened by the commanding general, Southeastern Department, for examination for promotion, Lieut.-Cols. CRAIG R. SNYDER, Camp McClellan, Anniston, Ala.; ARTHUR M. WHALEY, Camp Sevier, Greenville, S. C.; and LOUIS C. DUNCAN, Fort McPherson, Ga.; Majors CHARLES E. FREEMAN, Camp Pike, Little Rock, Ark.; CHARLES W. HAVERKAMPF, Fort Oglethorpe, Ga.; LEARTUS J. OWEN, Camp Greenleaf, Fort Oglethorpe, Ga.; and EDWARDS C. REGISTER, Hot Springs, Ark.

Major GLENN I. JONES, now on duty at Camp Devens, Ayer, Mass., Northeastern Department, to report to the president of the board to be convened by the commanding general, Northeastern Department, for examination for promotion.

Lieut.-Col. JUNIUS C. GREGORY to be relieved from duty at the Medical Officers' Training Camp, Fort Benjamin Harrison, Ind., and directed to proceed *to Fort Oglethorpe, Ga.,* for duty as instructor.

Major LEARTUS J. OWEN to be relieved from duty at the Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Ga., and directed *to proceed to Washington, D. C.,* and report in person to the Surgeon-General of the Army, for duty in his office.

Col. ALEXANDER N. STARK, now on duty at headquarters, Southeastern Department, Charleston, S. C., as department surgeon, to be directed *to proceed to Washington, D. C.,* and report in person to the Surgeon-General of the Army for consultation.

Col. HENRY C. FISHER, now at Camp McClellan, Anniston, Ala., *to proceed to Vicksburg, Miss.,* for the purpose of investigating and reporting on the suitability, for medical purposes, of the camp of Confederate Veterans at that place.

Capt. THOMAS J. LYNCH, N. G., to be relieved from duty with Field Hospital No. 137, Sanitary Train No. 110, Camp Doniphan, Fort Sill, Oklahoma, and *to report in person to the commanding officer of the base hospital, Fort Sill, Oklahoma,* for duty.

ORDERS TO OFFICERS OF THE MEDICAL RESERVE CORPS

Alabama

To Boston, Mass., for a course of instruction in orthopedic surgery from the Army Medical School, Lieut. HENRY W. GRADY, Birmingham.

To Camp Beauregard, Alexandria, La., for duty, Lieuts. JOHN M. BALL, Eufaula; CLIFFORD V. MAYHALL, Naleyville.

To Camp Jackson, Columbia, S. C., for duty from Fort O., Columbia, S. C., for duty, from Fort O., Lieuts. ROBERT GOLDWAITE, Montgomery; OTIS W. LITTLE, Salco.

To Camp Mills, Garden City, L. I., 41st Division, for duty, from Camp Greenleaf, Lieut. WILLIAM C. HATCHETT, Toney.

To Camp Sevier, Greenville, S. C., for duty, Lieut. COLUMBUS M. WOOLEY, Thorsby.

To Camp Shelby, Hattiesburg, Miss., from Camp Greenleaf, for duty, Lieut. ALBERT D. McFADDEN, Bellwood.

To Camp Wheeler, Macon, Ga., for duty, Lieut. LEWIS H. HAMNER, Camp Hill.

To Camp Wheeler, Macon, Ga., for duty, Lieutenant CRENSHAW, Hope Hill.

To Fort Benjamin Harrison, for duty in connection with orthopedic work, Lieut. WYATT S. ROBERTS, LaFayette.

To Fort Oglethorpe, Ga., for a course of instruction, Lieut. ALEXANDER W. GRAVES, Ashland.

To Fort Oglethorpe, Ga., for a course of instruction, Lieut. RAYFORD HODGES, Woodville.

To Neurological School, Chicago, Ill., for intensive training in brain surgery, from Fort O., Lieut. W. THEO. LANGLEY, Camp Hill.

To Philadelphia, Pa., University Hospital, for a course of instruction in fracture and upon completion of this course to proceed to Montgomery, Ala., for temporary duty as surgical assistant, from Fort O., Capt. WILLIAM M. JORDAN, Birmingham.

To his home and the inactive list of the Medical Reserve Corps from Camp Sheridan, Capt. CHARLES A. THIGPEN, Montgomery.

Arizona

To Camp Cody, Deming, N. M., for duty, Lieut. ROBER V. PARLETT, White River.

Arkansas

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. PHILIP H. THOMAS, Jr., Clarendon.

To Camp Dodge, Des Moines, Ia., and report to the Commanding Officer for duty in the genito-urinary and dermatologic section, Lieut. VELPESA H. RAGSDALE, Fitzhugh.

To Camp Doniphan, Fort Sill, Okla., for duty from Fort Riley, Lieuts. MATT F. HOUSTON, Clarendon; for duty in the division of ophthalmology, section of surgery of the head, ARIS. W. COX, Helena.

To Camp Greenleaf, Fort O., for a course of instruction, Lieut. MARSHALL ALLEN, O'Kean.

To Camp Jackson, Columbia, S. C., for duty from Fort Oglethorpe, Lieut. DEWELL GANN, Jr., Little Rock.

To Camp Logan, Houston, Tex., for duty, from Fort Riley, Lieut. PAT MURPHY, Little Rock.

To Camp MacArthur, Waco, Tex., for duty, Capt. ANTHONY C. THIELLIERS, Varner.

To Fort Benjamin Harrison, for a special course of instruction in tuberculosis examination, Capt. PERRY C. WILLIAMS, Texarkana.

To Fort Oglethorpe, Ga., for a course of instruction, Lieut. LOREN WALLIN, Dermett.

To Fort Oglethorpe, Ga., for a course of instruction, Lieut. ERTON E. POYNER, Green Forest.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, from Fort Oglethorpe, Lieut. JAMES W. BUTTS, Helena.

California

To Camp Cody, Deming, N. M., for duty, Lieut. LIVA C. McLAIN, Bakersfield.

To Camp Jackson, Columbia, S. C., for duty from Fort Oglethorpe, Lieut. ARTHUR M. GREENWOOD, San Diego.

To Camp Lewis, American Lake, Washington, for duty in the laboratory of the base hospital, Lieut. ROY W. HAMMACK, Los Angeles.

To Camp Mills, Garden City, L. I., 41st Division for duty, from Allentown, Pa., Lieut. FRANK E. McCULLOUGH, Lincoln.

To Camp Mills, Garden City, L. I., 41st Division, for duty, from Fort Benjamin Harrison, Ind., Lieut. SMITH S. JOHNSON, San Francisco.

To Houston, Texas, Aviation Section, Signal Corps, for duty, Capt. LOREZO F. LUCKIE, Los Angeles.

To Los Angeles, Calif., Aviation Section, Signal Corps, for duty, Capt. WILLIAM H. ROBERTS, Sonora.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. BRUNO F. SANDOW, Oakland.

To New York, N. Y., for instruction in orthopedic work, from the Army Medical School, Washington, Lieut. ORAL B. BOLIBAUGH, Reedley.

To Post Graduate Hospital, New York City, for a course of instruction in urology, from U. S. Army Transport *Sherman,* San Francisco, Lieut. THOMAS R. PETCH, Eureka.

To Report to Commanding Officer, Western Department, for duty, Lieut. JOSEPH H. GATTON, San Francisco.

To San Francisco, Calif., Aviation Section, Signal Corps, for duty, Lieut. ELBRIDGE J. BEST, San Francisco.

To San Francisco, University of California, for duty, Lieut. FREDERICK C. LEWITT, San Francisco.

Honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, Lieut. JOHN C. PAINE, Exeter.

Canal Zone

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Captain EDWARD P. BEVERLEY, Balboa.

To New York, N. Y., for instruction in orthopedic work, from Army Medical School, Washington, D. C., Panama City.

To Washington, D. C., and report to the surgeon-general for instructions, Capt. HERBERT C. CLARK, Ancon.

Colorado

To Boston, Massachusetts General Hospital, from Medical Officers' Training Camp, Fort Riley, Kan., for a course of instruction on fractures and on completion of this duty to Camp Doniphan, Fort Sill, Okla., for temporary duty as surgical assistant, Capt. CLARENCE B. INGRAHAM, Jr., Denver.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. DANIEL B. RILEY, Ignacio.

To Camp Logan, Houston, Tex., for duty from Fort Riley, Lieuts. WINFIELD S. CLELAND, Delta; BERT MENSER, Denver.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Fort Riley, Kan., Lieut. ALECK F. HUTCHINSON, Durango.

To Fort Benjamin Harrison, Hospital Train 20, for duty, from Medical Officers' Training Camp, Fort Benjamin Harrison, Lieut. WILLIAM C. LUCAS, Weldona.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. WILLIAM W. JONES, Denver; Lieut. ROBERT LEVY, Denver.

To New York City, Bellevue Hospital, for a course of instruction in fractures and on completion of this duty to Camp Custer, Battle Creek, Mich., 85th Division, for temporary duty, from Camp Custer, Lieut. ROBERT G. PACKARD, Denver.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, from Fort Riley, Lieut. FRED H. CARPENTER, Denver.

Connecticut

To Boston, Mass., for a course of instruction in orthopedic surgery from the Army Medical School, Lieut. FREDERICK K. HERPEL, Hartford.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Capt. ROBERT E. PERDUE, Norwich.

To Camp McClellan, Anniston, Ala., for duty as assistant to the chief of the Medical Service, from Fort Benjamin Harrison, Lieut. JOHN C. ROWLEY, Hartford.

To Fort Oglethorpe, Ga., for a course of instruction, Lieuts. LeVERNE HOLMES, Manchester; RUSSELL B. STREET, Suffield.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Capt. MICHAEL J. SHEAHAN, Derby.

To New Haven, Conn., Aviation Section, Signal Corps, for duty, Capt. HAROLD S. ARNOLD, New Haven.

To Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. CHARLES H. TURKINGTON, Pitchfield.

Delaware

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. ROBERT R. ROTH, New Castle.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, from Fort Riley, Lieut. JOHN B. ELLIOT, Laurel.

District of Columbia

To Boston, Mass., for a course of instruction in orthopedic surgery, from the Army Medical School, Lieuts. JOHN R. DeVELLING, Washington; EDWARD B. MACON, Washington.

To Camp Wheeler, Macon Ga., for duty, from Fort Oglethorpe, Capt. FRANCIS P. MORGAN, Washington.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. CHARLES W. HYDE, Washington.

To Neurological School, Chicago, Ill., for a course of instruction in brain surgery, Lieut. GRAFTON D. TOWNSHEND, Washington.

To New York, N. Y., for instruction in orthopedic work, Capt. EARL OSTERHAUS, Washington.

To the Office of the Surgeon-General, for duty in charge of the subdivision of otolaryngology, section of surgery of the head, Major CHARLES W. RICHARDSON, Washington.

Honorably discharged from the Medical Reserve Corps, Capt. VICTOR B. RENCH, Washington.

Florida

To Boston, Mass., for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. LAURENT L. LAROCHE, Cocoa.

To Camp Jackson, Columbia, S. C., for duty from Fort Oglethorpe, Lieut. LOUIS B. BOUCHELLE, Sanford.

To Camp Lee, Petersburg, Va., for duty, to be relieved from his present duties at that camp, Lieut. BENNETT A. BURKE, Titusville.

To Camp Mills, Garden City, L. I., 41st Division, for duty, from Allentown, Lieuts. PAUL L. GOSS, Mulberry; WILLIE J. VINSON, Tarpon Springs.

To Fort Oglethorpe, for a course of instruction, Lieut. THOMA E. PARRISH, Dania.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. JAMES L. PENNINGTON, Fountain; CLAUDE V. GAUTIER, Passagrille.

To his home and the inactive list of the Medical Reserve Corps on account of being physically disqualified for active service, from Allentown, Pa., Lieut. EDGAR S. STRICKLAND, Miccosukee.

Georgia

To Atlanta, Ga., Base Hospital No. 43, and on completion to the inactive list of the Medical Reserve Corps, Lieut. EDGAR H. GREENE, Atlanta.

To Camp Gordon, Atlanta, Ga., *for duty in the orthopedic service*, Lieut. OSCAR L. MILLER, Atlanta.

To Camp Greenleaf, Fort Oglethorpe, for a special course of instruction in tuberculosis examinations, Lieuts. ENOCH C. SEALE, Atlanta, and LUCIUS F. WRIGHT, Atlanta.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. JOSEPH E. MERCER, Baxley.

To Camp Lee, Petersburg, Va., for duty in connection with venereal diseases, Lieut. JAMES J. BEATON, Waycross.

To Camp Mills, Garden City, L. I., 41st Division, for duty, from Allentown, Pa., Lieut. MARK E. PERKINS, Miller.

To Camp Pike, Little Rock, Ark., 87th Division, for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Greenleaf, Fort Oglethorpe, Ga., Lieut. JESSE M. ANDERSON, Columbus.

To Camp Wadsworth, Spartansburg, S. C., for temporary duty, from Fort Oglethorpe, Lieut. GEORGE L. FUQUAY, Savannah.

To Camp Wheeler, Macon, for duty, Lieuts. BOWMAN J. WISE, Plains; JOHN H. TERRELL, Jr., Canon; EGBERT M. TOWNSEND, Tilton.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. JOHN H. HALL, Atlanta; THOMAS E. BLACKBURN, Swainsboro.

To Fort Oglethorpe, for a course of instruction, Lieut. ROBERT F. McLEOD, Pine View.

To St. Louis, Mo., Washington University, for a course of instruction, from Base Hospital No. 43, Atlanta, Ga., Lieut. JAMES W. ROBERTS, Jr., Atlanta.

To Washington, D. C., Aviation Section, Signal Corps, for duty, Lieut. SAMUEL A. ALEXANDER, Savannah.

Idaho

To Camp Lewis, American Lake, Washington, for temporary duty, Lieut. FREDERICK W. DIDIER, Harrison.

To Camp Travis, Fort Sam Houston, for duty, from Fort Riley, Kan., Lieuts. SAMUEL T. FANCETT, Bonners Ferry; GEORGE G. FITZ, Richfield.

To Fort Riley, Kan., for duty, Lieut. DONALD S. NUMBERS, Parma.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. CLYDE T. SMITH, Pocatello.

Illinois

To Boston, Mass., for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. HARVEY E. WEBB, Chicago.

To Camp American University, Washington, D. C., for duty with the 30th Engineers, from the Army Medical School, Lieut. ALFRED E. JONES, Chicago.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. EMMETT A. GARRETT, Peoria; Lieuts. WILLIAM THOMSON, Belknap; *NEIL R. FUNK, Chicago*; EDWARD H. RATEGAN, Chicago; EDWIN B. GODFREY, Springfield; HAMES L. LEWIS, Joliet.

To Camp Cody, Deming, N. M., for duty in connection with the division of otolaryngology, section of surgery of the head, Lieut. DOUGLAS A. LEHMAN, Harrisburg.

To Camp Custer, Battle Creek, Mich., for duty, Lieuts. SHERMAN DAVIS, Chicago; GRANT J. GRAY, Chicago.

To Camp Funston, Fort Riley, for duty, Lieut. RAYMOND EVANS, Eaton.

To Camp Doniphan, Fort Sill, Okla., for duty from Fort Riley, Kan., Capt. ROBERT G. McCARTHY, Chicago.

To Camp Grant, Rockford, Ill., for duty, Capt. EMIL WINDMUELLER, Woodstock; *Lieut.* CARL V. A. WEICHELT, *Barrington*; HARRISON C. CHAMPLIN, Chicago; LEO G. HOGAN, Chicago.

To Camp Greenleaf, Fort Oglethorpe, Ga., for a course of instruction, Lieuts. HARRY M. KEDGE, Chicago; ELMER MAURICE SMITH, Georgetown; ARVID E. KOHLER, Moline; GEORGE L. RATHBUN, New Windsor; LEON W. KELSON, Paxton; HENRY STERN, South Chicago.

To Camp Logan, 33rd Division, Houston, Tex., for duty, Major DANIEL W. ROGERS, *Chicago*; *Lieuts.* WILLIAM R. MANGUM, Bridgeport; WALTER D. HALL, Chicago; OLIVER C. HARGREAVES, Chicago; ORVIL O'NEAL, Shattuc; JOHN B. HAZEL, Jr., Staunton; HARLEY A. ZINSSER, Washington.

To Camp McClellan, Anniston, Ala., for duty as assistant to the chief of the Medical Service, Lieut. FRANK EVANS, Springfield.

To Camp Mills, Garden City, L. I., 41st Division, for duty from Allentown, Lieuts. EARL K. LANGFORD, Chicago; JOSEPH C. KIMBALL, Joliet.

To Camp Pike, Little Rock, Ark., for duty as chief of the surgical service, Major HUGH McKENNA, Chicago.

To Camp Taylor, Louisville, Ky., from Fort Benjamin Harrison, Lieut. WILLIAM H. CREDE, Chicago.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Kan., Lieuts. WALTER A. DEW, Belleville; GLENN S. EVANS, Forrest; MORRIS FINKELBERY, Springvalley.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. ORVAN A. PHIPPS, Toledo.

To Chicago, Neurological School, for a course of instruction in brain surgery, Major SAMUEL C. PLUMMER, Chicago; Lieut. FRED L. GLASCOCK, Chicago.

To Fort Benjamin Harrison, Ind., for a special course of instruction in tuberculosis examination, Capt. CHARLES H. POWELL, Old Ripley; Lieuts. EDWIN S. GILLESPIE, Wenona; TIMOTHY C. WEBER, West Salem.

To Fort Oglethorpe, for a course of instruction, Capt. JOHN B. HOWE, Chicago; Lieuts. FRANK J. JIRKA, Chicago; ALFRED C. WENDT, Chicago; LUCIEN N. LINDSEY, Forsyth; RALPH A. CLARIDGE, Kaneville; SAMUEL L. OREN, Lewiston.

To Fort Sam Houston, Tex., Camp Travis, for duty from Fort Riley, Kan., Lieut. ANDREW J. AIRD, Carterville.

To Hoboken, N. J., for duty, from Fort Benjamin Harrison, Lieut. GEORGE N. PRATT, Chicago.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. GROVER C. OTRICH, Belleville; RALPH H. KUHNS, Chicago; CHARLES P. SMALL, Evanston.

To New York, for instruction in orthopedic work, from Army Medical School, Lieut. MARCUS H. HOBART, Chicago.

To Pittsburgh, Pa., from Fort Benjamin Harrison for a course of instruction on fractures and on completion of this duty to Camp *Doniphan, Fort Sill, Okla., for temporary duty as surgical assistant*, Capt. CHARLES H. PARKES, Chicago; for a course of instruction on fractures and on completion of this duty to Fort Riley, Kan., and report for temporary duty as surgical assistant, from Fort Benjamin Harrison, Capt. WILLIAM G. LEE, Chicago.

To Plattsburg Barracks, N. Y., for duty in connection with orthopedic work, from Camp Sheridan, Lieut. JAMES H. VETTER, Chicago.

To Rockefeller Institute, for a course of instruction and on completion *of this duty to Fort Logan, Colo., for temporary duty, from Fort* Benjamin Harrison, Capt. VERNON C. DAVID, Chicago.

To Rockford, Ill., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. JOSEPH URKOV, Chicago.

To St. Louis, School of Plastic and Oral Surgery, Evans Dental Institute, for a three weeks' course of intensive training in head surgery, from Fort Oglethorpe, Lieut. WILLIAM H. MALEY, Galesburg.

To Walter Reed General Hospital, Takoma Park, D. C., for duty, from State Psychopathic Hospital, Ann Arbor, Mich., Lieut. EDWARD J. STRICKLER, Chicago.

To his home and the inactive list of the Medical Reserve Corps of the Army on account of being physically disqualified for active service, Lieut. JAMES A. BOYER, Carmi.

Indiana

To Boston, Mass., for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. HASKETT L. CONNER, Indianapolis.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. EDWARD L. DEWEY, Whiting.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Capt. LEWIS F. MOBLEY, Summitville.

To Camp MacArthur, Waco, Tex., for duty, from Fort Benjamin Harrison, Lieut. SIDNEY G. CORTNER, Otisco.

To Camp Meade, Annapolis Junction, Md., for duty, from Phipps Clinic, Baltimore, Md., Lieut. WILLIS W. CAREY, Fort Wayne.

To Camp Mills, Garden City, L. I., 41st Division, for duty, from Allentown, Lieuts. LLOYD A. ELLIOT, Elkhart; WALTER M. STOUT, Indianapolis; JAMES G. KIDD, Roann; for duty from Fort Benjamin Harrison, Lieuts. HENLY H. HUBBARD, Boswell; HOMER E. LINE, Chili.

To Camp Sevier, Greenville, S. C., for duty, Capt. WILLIAM E. GEORGE, Crawfordsville.

To Camp Sherman, Chillicothe, Ohio, for duty, from Fort Benjamin Harrison, Lieuts. CHARLES E. STON, Shoals; MALCOLM B. FYFE, Wheatfield.

To Camp Travis, Fort Sam Houston, Tex., for duty from Fort Riley, Kan., Lieut. DANIEL D. JONES, Berne.

To Fort Benjamin Harrison, for a special course of instruction in tuberculosis examination, Lieut. JULIUS J. GROSVENOR, Richmond.

To Fort Oglethorpe, for a course of instruction, Lieuts. NAPOLEON LA BONTA, Indianapolis; CLAUDE B. NEIDHAMER, *Indianapolis;* FREEMAN R. BANNON, Kokomo; GEORGE H. DAY, New Albany.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. BERNARD J. LARKIN, Indianapolis; EARL D. JEWETT, St. Paul.

To Rockefeller Institute, New York City, for a course of instruction and on completion of this course to *proceed to* Camp Taylor, Louisville, Ky., for temporary duty, from Fort Benjamin Harrison, Lieut. FREDERICK A. HENDERSON, Kokomo.

To Rockford, Ill., for duty from Fort Benjamin Harrison, Lieut. EDGAR R. HIATT, Portland.

To St. Louis, School of Plastic and Oral Surgery, Evans Dental Institute, for a three weeks' course *of intensive* training in head surgery, Capt. ALFRED P. ROOPE, Columbus.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course *of intensive training in head surgery,* *from Fort Benjamin Harrison,* Capt. GEORGE B. BREEDLOVE, Martinsville; from Fort Riley, Lieut. FRED G. EBERHARD, South Whitley.

To his home and honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, from Fort Benjamin Harrison, Capt. JOSEPH K. WORTHINGTON, Indianapolis.

Iowa

To Boston, Massachusetts General Hospital, from Medical Officers' Training Camp, Fort Riley, for a course of instruction on fractures and on completion of this duty to Camp Lewis, American Lake, Washington, for temporary duty as surgical assistant, Capt. CARL J. SNITKAY, Belle Plaine.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. MERLE BONE, Albia; ROY C. GUTCH, Chariton; EDWARD L. HALLINAN, Clinton; WALTER G. FINLEY, Mondamin.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Capts. CHALMERS A. HILL, Council Bluffs; JOHN W. SHUMAN, Sioux City; ROBERT C. CRUMPTON, Webster City.

To Camp Jackson, Columbia, S. C., for duty from Fort Oglethorpe, Lieut. JOHN F. MEANY, Rockwell.

To Camp Logan, Houston, Tex., for duty from Fort Riley, Lieut. RALPH J. SELMAN, Blakesburg.

To Camp Logan, Houston, Tex., for duty from Fort Riley, Lieuts. BENJAMIN C. HAMILTON, Jr., Jefferson; PAUL NICOLAI, Livermore; JOHN W. STIERS, Muscatine; CLYDE R. VAN VOORHIS, Prairie City; EDMUND W. WILSON, Rolfe; HERBERT PEASE, Slater.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Kan., Lieut. ROY K. KEECH, Cedar Rapids.

To Fort Oglethorpe, for a course of instruction, Lieuts. GEORGE W. FRANK, Buffalo; ERWIN J. GOTTSCH, LeMard; ROBERT G. HINRICHS, Palmer.

Kansas

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. CHARLES J. BLISS, Mayetta; UEN S. HARRISON, Topeka.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieuts. HERBERT W. JURY, Clafin; CHARLES A. DIETER, Hope; HARRY H. HUDSON, Newton; MEADE A. BUTTON, Topeka.

To Camp Greenleaf, Fort Oglethorpe, Ga., for a course of instruction, Capt. FRANKLIN T. JOHNSON, Jr., Elmdale; Lieut. CASPER J. MIDDLEKAUFF, Hays.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. JAMES G. STEWART, Topeka.

To Camp MacArthur, Waco, Tex., for duty, Lieuts. ALEXANDER B. SCOTT, Bucklin; THOMAS E. CRUMP, Parsons.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Lieut. RALPH C. HENDERSON, Erie.

To Fort Riley, for duty, Lieuts. WILLIAM H. HEUSCHELS, Corning; MARK BEACH, Fort Riley; MALCOLM NEWLON, Lincoln.

To Kelly Field, Signal Corps, Aviation School, San Antonio, Tex., from Fort Benjamin Harrison, for duty, Lieut. PAUL C. CARSON, Ashland.

To Philadelphia, to the School of Plastic and Oral Surgery, Evans Dental Institute, for a three weeks' course of intensive training, Lieut. IVAN R. BURKET, Ashland.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, from Fort Riley, Lieut. JESSE D. COOK, Topeka.

Kentucky

To Army Medical School, Washington, D. C., *for* the required course of instruction, Lieut. FLOYD V. KILGORE, Louisville.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Kan., Lieuts. ARTHUR C. GOODMAN, Louisville; WILLIAM A. KRIEGER, New Port; MARVIN C. PENTZ, Nicolasville.

To Camp Greenleaf, Fort Oglethorpe, Ga., for a course of instruction, Lieut. CLAY CRAWFORD, Fort Thomas.

To Camp Logan, Houston, Tex., for duty, from Fort Riley, Kan., Lieuts. LOUIS M. TOMLINSON, Harveyville; GROVER A. BECKETT, Sunrise.

To Camp Meade, Annapolis Junction, Md., for duty, from Phipps Clinic, Baltimore, Capt. WALTER A. LACKEY, Paducah.

To Camp Mills, Garden City, L. I., 41st Div., for duty, from Fort Benjamin Harrison, Lieut. ALBERT E. HOLMES, Louisville.

To Camp Sevier, Greenville, S. C., for duty, Lieut. WILLIAM T. BRUNER, Louisville.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort *Riley,* Kan., Lieut. ROBERT B. MORRIS, Bowling Green.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. HOMER L. NICKELL, Salt Lick.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. JOHN P. WHEELER, Carrollton.

To Fort Benjamin Harrison, Hospital Train 20, for duty, *from* Medical Officers' Training Camp, Lieut. WILLIAM B. DOHERTY, *Louisville;* for a course in tuberculosis examination, Lieut. CHARLES F. VOIGHT, Valley Station.

To Fort Oglethorpe, for a course of instruction, Lieut. JOHN D. GRANT, Maysville.

To Fort Sheridan, Ill., for duty with Hospital Train A, from Fort Benjamin Harrison, Lieut. WILLIAM B. DOHERTY, Louisville.

To Harvard Medical School, Boston, Mass., for a course of *instruction* in orthopedic surgery, and on completion of this course *to proceed* to his home and return *to the inactive* list of the Medical Reserve Corps, Lieut. OTTO P. HODGE, Grants Lick.

To New York City, Bellevue Hospital, for a course of instruction in fractures, and on cocmpletion of this duty to Camp Taylor, Louisville, Ky., 84th Div., *for temporary* duty, *from* Camp Taylor, Lieut. JOHN B. RICHARDSON, Jr., Louisville.

To Rockford, Ill., for duty, from Fort Benjamin Harrison, Lieuts. WILLIAM J. YOUNG, Louisville; for duty as a member of a board of medical officers for the *special* examination of the command for tuberculosis, ALFRED H. KELLY, Shively.

Relieved from duty at the Medical Officers Training Camp, Fort Des Moines, Iowa, *and returned* to the inactive list of the Medical Reserve Corps, Lieut. VAN J. DAVIS, Paducah.

To his home on completion of the course at the school of plastic and oral surgery, Washington University, St. Louis, Mo., and returned to *the inactive list* of the Medical Reserve Corps, Capt. ROBERT M. COLEMAN, Lexington.

Louisiana

To Boston, Mass., for a course of instruction in orthopedic surgery, *from the* Army Medical School, Lieut. KARL F. KESMODEL, New Orleans.

To Camp Beauregard, Alexandria, La., for duty, Lieut. WALTER H. REILLEY, New Orleans.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. ALFRED L. LEWIS, Bogalusa; SIDNEY F. BRAND, New Orleans.

To Camp Mills, Garden City, L. I., 41st Div., for duty, *from* Camp Greenleaf, Fort Oglethorpe, Lieut. JOHN G. LILLY, St. Joseph.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Kan., Lieut. PRENTISS E. PARKER, Bourg.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. WILLIAM T. McNEESE, Augie.

To Chicago, Ill., Neurological School, Presbyterian Hospital, *for* intensive training in brain surgery, and on completion of this course to return to his present station, from Fort Oglethorpe, Capt. *THOMA* P. LLOYD, Shreveport.

To Cornell Medical College, N. Y., for a course of instruction in military roentgenology, from Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Lieut. ELEAZOR R. BOWIE, *New Orleans.*

To New York City, Bellevue Hospital, for a course of *instruction in* fractures and on completion of this course to Fort Oglethorpe *for* temporary duty in the Provisional Base Hospital, from Fort *Oglethorpe,* Lieut. THOMA RAGAN, Shreveport.

To Reorganization Camp, Gettysburg, Pa., for duty, from Army Medical School, Lieut. FARRAR B. PARKER, New Orleans.

Maine

To Boston, Mass., for a course of instruction in orthopedic surgery, from the Army Medical School, Capt. WILLIAM C. WHITMORE, Portland.

To Camp Logan, Houston, Tex., for duty, from Fort Riley, Lieut. MILTON O. HOUGHTON, Paris.

To Camp Wadsworth, Spartanburg, S. C., *for* duty, Lieut. JAMES W. LOUGHLIN, Newcastle.

Maryland

To Boston, Mass., for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. ARTHUR M. *BACON,* Baltimore.

To Camp Jackson, Columbia, S. C., *for duty,* from Fort Oglethorpe, Lieuts. JAMES S. AKEHURST, Baltimore; WILLIAM L. MILLEA, Baltimore.

To Camp Mills, Garden City, L. I., 41st Div., for duty, from Camp Greenleaf, Fort Oglethorpe, Lieut. JOHN R. DOWNES, Preston.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieuts. HOWARD H. JOHNSTON; for duty as assistant to the chief of the medical service and as tuberculosis specialist, Lieut. ARTHUR F. PETERSON, Baltimore.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. ALEXANDER McC. STEVENS, Easton.

To Chicago, Ill., Neurological School, for intensive training in brain surgery, Lieut. WILLIAM R. GERAGHTY, Baltimore.

To Hoboken, N. J., for duty, Lieut. JAMES A. ETHERIDGE, Baltimore.

To Pittsburgh, for a course of instruction on fractures and on completion of this duty to Camp Shelby, Hattiesburg, Miss., for temporary duty as surgical assistant, Lieut. HARRY GROSS, Baltimore.

To Plattsburg Barracks, N. Y., in connection with ophthalmology and otolaryngology, section of surgery of the head, Capt. ALEXANDER D. McCONACHIE, Baltimore.

To Saranac Lake, N. Y., for ten days' instruction in laboratory methods in the diagnosis of tuberculosis and on completion of this instruction to be returned to his proper station, from Camp Devens, Ayer, Mass., Lieut. GEORGE B. WISLOCKI, Baltimore.

To his home on completion of the course at the school of plastic and oral surgery, Washington University, St. Louis, Mo., and returned to the inactive list of the Medical Reserve Corps, Lieut. FRED RANKIN, Baltimore.

Massachusetts

To Boston, as instructor in orthopedic surgery, Capt. MARK H. ROGERS, Boston; for a course of instruction in military roentgenology, Capt. JOHN H. LINDSAY, Fall River.

To City Hospital, Boston, for a course of instruction in fractures, and on completion of this course to proceed to Camp Devens, for duty as surgical assistant, *from Camp Devens,* Lieuts. ROBERT L. JONES, Lowell; for a course of instruction on fractures, and on completion of this course to Plattsburg Barracks, N. Y., for temporary duty as surgical assistant, Lieut. WILLIAM F. RYAN, Lowell.

To Boston, General Hospital, for a course of instruction on fractures, and on completion of this duty to Fort McPherson, Ga., for temporary duty, from Fort Benjamin Harrison, Lieut. DAVID D. SCANNELL, Boston.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieut. OSCAR L. SPENCER, Lynn.

To Camp Devens, Ayer, Mass., for duty, from Fort Benjamin Harrison, Lieut. JOHN F. STREETER, Springfield.

To Camp Greene, Charlotte, N. C., for duty as assistant to the chief of the Medical Service, Lieut. *ALFRED E. JOHNSON, Greenfield.*

To Camp MacArthur, Waco, Tex., for duty, from Fort Benjamin Harrison, Lieuts. RIDGELY F. HANSCOM, Newton; JOHN A. SULLIVAN, Pittsfield.

To Camp Mills, Garden City, L. I., 41st Div., for duty, from Fort Benjamin *Harrison,* Lieuts. WERNER HILTPOLD, Easthampton; WILLARD W. LEMAIRE, Lynn.

To Fort Oglethorpe, for a course of instruction, Capt. STARR A. MOULTON, Winthrop; Lieut. JOSEPH SEGAL, Boston.

To Fort Ontario, New York, for duty as commanding officer of Field Hospital No. 28, from Fort Benjamin Harrison, Major GEORGE OSGOOD, Cohasset; for duty as commanding officer of Field Hospital No. 30, Capt. DANNA W. DRURY, Boston; for duty with Field Hospital No. 30, from Fort Ethan Allen, Vt., Capts. HARRY E. SEARS, Beverly; HENRY M. FIELD, Norwood; Lieuts. ROLF C. NORRIS, Methuen; from Camp Devens, WHITMAN G. STICKNEY, Beverly.

To Kelly Field, Signal Corps, Aviation School, San Antonio, Tex., from Fort Benjamin Harrison, for duty, Lieut. SAMUEL B. KAUFMAN, Fall River.

To New York City, for instruction in orthopedic surgery, Lieut. ALFRED A. FENTON, Norwood.

To Philadelphia, School of Plastic and Oral Surgery, for a three weeks' course of intensive training, Capt. RALPH C. WIGGIN, Cambridge.

To Philadelphia, University Hospital, from Medical Officers' Training Camp, Camp Greenleaf, Fort Oglethorpe, Ga., for a course of instruction *on fractures, and on completion of this course to* Camp Wadsworth, Spartanburg, S. C., for temporary duty as surgical assistant, Lieut. DONALD MUNRO, Milton.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, from Fort Benjamin Harrison, Lieut. CHARLES F. CANEDY, Greenfield.

To Camp MacArthur, Waco, Tex., 32d Div., National Guard, for *temporary duty as cardiovascular* examiner, Capt. GEORGE D. HENDERSON, Holyoke.

To Walter Reed General Hospital, Takoma Park, D. C., for a course in tuberculosis examination, Capt. FRANCIS R. BURKE, Quincy.

To Washington, D. C., and report to the commanding officer for the required course of instruction, Lieut. WALTER L. PERRY, Worcester.

Mexico

To New York City, for instruction in orthopedic work, *from Army* Medical School, Lieut. OTTO R. BROWN, Tampico Tamps.

Michigan

To Boston, for a course of instruction in orthopedic surgery, from the Army Medical School, Capt. CURTIS D. PILLSBURY, Ann Arbor.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. AURA A. HOYT, Battle Creek; DAVID LITTLEJOHN, Bridgman.

To Camp Custer, Battle Creek, Mich., for duty, Lieuts. JOHN E. HESLOP and SLIL A. MARTINDALE, Hillsdale.

To Camp Greenleaf, Fort Oglethorpe, *for* a course of instruction, Lieut. WORTH W. WALTON, Mancelona.

To Camp MacArthur, Waco, Tex., for duty, from Fort Benjamin Harrison, Capt. CLARENCE M. WILLIAMS, Alpena; Lieut. WILLIAM J. RYNEARSON, Parshallville.

To Camp Mills, Garden City, *L. I., 41st Div.,* for duty, from Fort Benjamin Harrison, Lieut. GEORGE F. LISTER, Willman.

To Camp Shelby, Hattiesburg, Miss., for temporary duty, from Medical Officers' Training Camp, Fort Benjamin Harrison, Lieut. BURT F. GREEN, Hillsdale.

To Camp Travis, Fort Sam Houston, Tex., *for duty, from Fort Riley,* Kan., Lieuts. HARRY S. BERMAN, Detroit; JOHN W. EVERS, Flint; VAN D. BARNES, Morenci; ROBERT McK. GREENSHIELDS, Romeo; GEORGE L. ALGER, Saginaw.

To Camp Wheeler, Macon, Ga., for duty in the orthopedic service, Lieut. LEE C. DONNELLY, Detroit.

To Fort Benjamin Harrison, Ind., for a course of instruction in tuberculosis examinations, Lieut. RAY L. FELLERS, Detroit.

To Fort Oglethorpe, for a course of instruction, Lieuts. MARTIN W. CAVENEY, Detroit; *CHARLES J. FOLEY, Detroit;* WILLIAM Y. KENNEDY, *Detroit;* WILLIAM WESTRATE, *Holland.*

To Fort Riley, Kan., for duty as plastic and oral surgeon, in the section of surgery of the head, from School of Plastic and Oral Surgery, Washington University, St. Louis, Major PETER D. MACNAUGHTON, Calumet.

To Kelly Field, Signal Corps, Aviation School, San Antonio, Tex., from Fort Benjamin Harrison, for duty, Lieut. ROBERT D. SCOTT, Rudyard.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. PHILLIP I. FROUDE, Detroit.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, Capt. WILLIAM C. McCUTCHEON, Cassopolis.

To St. Louis, School of Plastic and Oral Surgery, Evans Dental Institute, for a three weeks' course of intensive training in head *surgery, from* Fort Oglethorpe, Capt. RALPH E. BALCH, Kalamazoo; Lieut. BERNHARD FRIEDLAENDER, Saginaw.

Honorably discharged from the Medical Reserve Corps, Lieut. MARSHALL *B.* McCAUELAND, Imlay City.

Minnesota

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. JOHN C. BROWN, St. Paul; JOHN J. PLATT, St. Paul.

To Camp Custer, Battle Creek, Mich., for duty, Capt. CHARLES R. CHRISTENSON, Minneapolis.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. ANTON G SANDERSON, Minneota.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. REINHART G. OLSON, Nicollet.

To Camp Logan, Houston, Tex., for duty, from Fort Riley, Lieut. VIRGIL H. MOATS, Minneapolis.

To Camp Robinson, Sparta, Wis., for duty, Lieut. CHARLES K. HOLMES, St. Paul.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Kan., Lieuts. EDWARD T. FITZGERALD, Morris; DAVID S FLEISCHHAUER, Wabasha.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. AUGUST F. HUNTE, Truman.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery and on completion of this course to return to his *proper station, from* Minneapolis, Major JAMES F. CORBETT, Minneapolis.

To Chicago, Neurological School, Presbyterian Hospital, for intensive training in brain surgery, from Fort Riley, Capt. EARL H. MARCUM, Bemidji.

To Fort Benjamin Harrison, Ind., *for a special course of instruction* in tuberculosis examinations, Lieut. THOMAS G. CLEMENT, Vernon Center.

To Fort Oglethorpe, for a course of instruction, Capt. WILLIAM E. WRAY, Campell; Lieut. ELMER A. CARBERRY, Minneapolis.

To Fort Worth, Tex., Aviation Section, Signal *Corps, for* duty Capt. JOHN C. STALEY, St. Paul.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut ARTHUR J. LEWIS, Hemming.

To Rockefeller Institute, New York City, for a course of instruction and on completion of this course to return to his proper station, from Fort Sheridan, Ill., Lieut. GEORGE D. RICE, St. Cloud.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course *of intensive* training in head surgery, from Fort Riley, Lieut. FLOYD W. BURNS, St. Paul.

Mississippi

To Boston, for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. EGBERT H. WESSON, *New Albany.*

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. JOHN S. McINTOSH, Mt. Olive; Lieuts. CLAUD C. GREENE, Baltzer; CHARLES A. MARTIN, *Chanky; DANIEL S. JOHNSON,* Houston; PHIL R. POLK, Oak Vale.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Capt. BERNARD H. BOOTH, Drew; Lieuts. JAY R. LANNING, Corinth; REGINALD S. ANNIS, Stillmore.

To Camp McClellan, Anniston, Ala., for duty as assistant to the chief of the medical service, Lieut. HILTON R. CARR, Water Valley.

To Camp Mills, Garden City, L. I., 41st Div., for duty, from Camp Greenleaf, *Fort Oglethorpe, Lieut. CHARLES* E. LEHMBERG, Artesia.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Kan., Lieut. WILLIAM A. D. JAMES, Midnight.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. ARMEN F. WICKS, Okolona.

To Fort McPherson, Atlanta, Ga., for duty in the genito-urinary and dermatologic section of the base hospital, from Fort Oglethorpe, Lieut. WALLACE L. BRITT, Jackson.

To Fort Oglethorpe, for a course of instruction, Lieut. ERIC A. McVEY, Lambert.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. SOLOMON R. BOYKIN, Puckett.

To Philadelphia, University Hospital, for a course of instruction on fractures and on completion of this course to proceed to Camp MacArthur, Waco, Tex., for temporary duty as surgical assistant, Capt. WALTER R. McKINLEY, Columbus.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, from Fort Oglethorpe, Lieut. HEWITT JOHNSTON, Biloxi.

Missouri

To Boston, for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. NOBLE D. McCORMACK, St. Louis.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. CHESTER A. POE, Fruitland; ROSCOE C. CAMPBELL, Highbee; LAWRENCE R. GAUSEPEHL, St. Elizabeth; JAMES A. LOGAN, Warsaw.

To Camp Dodge, Des Moines, Iowa, for duty, from Rockefeller Institute, New York, Lieut. FRANK R. TEACHENER, Kansas City.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Kan., Lieut. SAMUEL B. AVERY, Troy.

To Camp Funston, Fort Riley, Kan., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieut. JAMES R. SANFORD, Kansas City.

To Camp Greenleaf, Fort Oglethorpe, Ga., for a course of instruction, Lieuts. ROBERT R. CUTLER, Berger; LESLIE C. RANDALL, Licking.

To Camp Logan, Houston, Tex., for duty, from Fort Riley, Lieuts. NORMAN A. SCHWALD, Cole Camp; GEORGE H. BRAGDON, Reeds; JOSEPH T. BRENNAN, Vichy.

To Camp McArthur, Waco, Tex., for duty, Lieuts. HERBERT S. LANGSDORF, St. Louis; JOHN H. MURPHY, St. Louis.

To Camp Mills, Garden City, L. I., 41st Division for duty, from Allentown, Pa., Lieut. WILFORD A. FAIR, Pleasant Hill.

To Camp Shelby, Hattiesburg, Miss., for duty in the surgical service, from Fort Logan H. Rooks, Ark., Lieut. HORACE A. LOWE, Springfield.

To Camp Travis, Fort Sam Houston, Tex.; for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Kansas City, Mo., Capt. MINFORD A. HANNA, Kansas City.

To Camp Upton, Yaphank, L. I., N. Y., for duty as oral surgeon, section of surgery of the head, from the School of Plastic and Oral Surgery, Washington University, St. Louis.

To Fort Benjamin Harrison, for a special course of instruction in tuberculosis examination, Lieuts. JAMES B. BIGGS, Bowling Green; JACOB J. KENNEDY, Frankford.

To Fort Oglethorpe, for a course of instruction, Lieuts. EDWARD A. HOEFER, Marceline; DOUGLAS WYATT, Mineola; GUSTAVE G. KALMUT, St. Louis; WILLIAM H. ALLEN, Ulrich; for the required course of instruction, from Fort Logan H. Roots, Ark., Lieut. OLIVER S. GILLILAND, Kansas City.

To Cornell Medical College, N. Y., for a course of instruction in military roentgenology, Lieut. ROZIN C. SHAWHAN, Hale.

To Kansas City, Mo., Aviation Section, Signal Corps, for duty, Lieut. THEODORE S. BLAKESLEY, Kansas City.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. CLYDE O. BROWN, St. Louis.

To Montgomery, Ala., Auxiliary Remount Depot, No. 312, for duty, from Fort Riley, Kan., Lieut. DAVID E. SCHMALHORST, St. Louis.

To New York City, Bellevue Hospital, from Fort Riley, for a course of instruction on fractures and on completion of this duty to Camp Kearney, Linda Vista, Calif., for temporary duty as surgical assistant, Lieut. RODERICK D. STREETOR, Moberly.

To Rockford, Ill., for duty from Fort Benjamin Harrison, Lieut. CHARLES M. BAUMAN, St. Louis.

To Washington, D. C., for temporary duty in the office of the Surgeon-General, from Fort Benjamin Harrison, Lieut. FRANK L. MORSE, St. Louis.

To his home on completion of the course at the school of plastic and oral surgery, Washington University, St. Louis, Mo., and returned to the inactive list of the Medical Reserve Corps, Lieut. SHERMAN B. HIBBARD, Kansas City.

Montana

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. JAMES L. JENSON, Denton.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Kan., Lieuts. WILLIAM A. ALEXANDER, Forsyth; DAVID A. BAKER, Jordon.

To Fort Oglethorpe, for a course of instruction, Lieut. FERRIA L. ARNOLD, Billings.

Nebraska

To Boston, Massachusetts General Hospital, from Fort Riley, for a course of instruction on fractures and on completion of this duty to Camp Taylor, Louisville, Ky., for temporary duty as surgical assistant, Lieut. HENRY FITZGIBBON, Omaha.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. ROY E. HALL, Fullerton; HENRY B. FROSH, Lincoln.

To Camp Custer, Battle Creek, Mich., for duty, Capt. DANIEL B. STIDWORTHY, Homer.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. TYRE K. JONES, Ainsworth.

To Camp Logan, Houston, Tex., for duty, from Fort Riley, Lieut. FRANCIS A. WELLS, Axtell.

To Camp Travis, Fort Sam Houston, Tex., for duty, from Fort Riley, Kan., Lieuts. CLIFFORD L. HOOPER, Lewellen; LEO D. HARMAN, Table Rock.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieut. EMIL A. LYNWOOD, Omaha.

To Fort Oglethorpe, for a course of instruction, Lieuts. LOUIS L. BURSTEIN, Blair; WALTER L. JOHNSON, Steinauer.

To Fort Riley, Kan., for duty, Lieut. WILLIAM C. BARTLETT, Alma.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. RALPH C. CHRISTIE, Clarks; WILLIAM L. ROSS, Jr., Florence.

To New York City, Bellevue Hospital, from Fort Riley, for a course of instruction on fractures and on completion of this duty to Camp Dodge, Des Moines, Ia., for temporary duty as surgical assistant, Lieut. BENJAMIN R. McGRATH, Grand Island.

To Omaha, Neb., Aviation Section, Signal Corps, for duty, Capt. ADOLPH B. LINDQUEST, Omaha.

To report in person to the officer in charge, Physical Examining Unit, Aviation Section, Signal Corps, for duty, Lieut. CLAUDE T. UREN, Omaha.

Nevada

To Camp Logan, Houston, Tex., for duty, from Fort Riley, Lieut. WILLIAM C. ROLLER, Reno.

New Hampshire

To Boston, Mass., for a course of instruction in military roentgenology, Lieut. ERNEST W. LOWE, Fremont.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. THERON H. HUCKINS, Tilton.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, Lieuts. JOHN J. OSTERHOUT, Keene; from Fort Benjamin Harrison, JOHN B. WARDEN, Whitefield.

New Jersey

To Boston, for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. CHARLES E. BRENN, Camden.

To Camp Beauregard, for duty, Capt. HERBERT L. COOPER, Pennsgrove.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. BONNETTE W. HOAGLAND, Woodbridge.

To Camp Dix, Wrightstown, N. J., for temporary duty, Lieut. SIDNEY C. LEVINE, Paterson.

To Camp Gordon, Atlanta, Ga., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Fort Oglethorpe, Lieut. GEORGE E. HARHAN, Verona.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. GEORGE T. BARCKLOS, Newark; WILLIAM HENLEY SMITH, Trenton.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. LEO E. FROOMESS, Elizabeth.

To Camp Mills, Garden City, L. I., 41st Div., for duty, from Allentown, Lieut. CLAUDE W. THOMAS, Woodstown.

To Camp Shelby, Hattiesburg, Miss., for duty, from Camp Jackson, Lieut. FRANK H. PINCKNEY, Morristown.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieuts. PHILIP DuB. BUNTING, Elizabeth; ARTHUR H. TEMPLE, Passaic.

To Fort Benjamin Harrison, for a special course of instruction in tuberculosis examination, Lieuts. LEROY D. WHITNEY, Belleville; GEORGE B. EMORY, Newark.

To Fort Oglethorpe, for a course of instruction, Lieut. JAMES S. KNOWLES, Tuckahoe.

To Charlotte, N. C., Campe Greene, for duty in the surgical service, from Fort Oglethorpe, Lieut. ADOLPH VON-P. FARDELMANN, Jersey City.

To Chicago, Neurological School, for a course of instruction in brain surgery, Lieuts. STEPHEN T. QUINN, Elizabeth; EDWIN N. RIGGINS, Orange.

To New York City, Bellevue Hospital, for a course of instruction in fractures and on completion of this duty to United States General Hospital, for temporary duty, from United States Army General Hospital, Lieut. VICTOR B. SEIDLER, Montclair.

To New York City, Post-Graduate Medical School and Hospital, for a course of instruction in urology and dermatology, Lieut. ROCCO M. NITTOLI, Newark.

To Rockford, Ill., for duty, from Fort Benjamin Harrison, Lieut. RAOUL A. HERBERT, Cohoes.

To the inactive list of the Medical Reserve Corps, from Camp Devens, Ayer, Mass., Lieut. CAESARE MONDINI, Asbury Park.

New Mexico

To Camp Cody, Deming, New Mexico, for duty, Capt. OLIVER R. HAYMAKER, Roswell.

New York

To Army Medical School, Washington, D. C., for the required course of instruction, Lieuts. WESLEY C. COX, Brooklyn; WILLIAM S. MARTENS, Shrub Oak; from the Colon Hospital, Ancon, Canal Zone, WILLIAM S. McCANN, New York.

To Boston, Boston City Hospital for a course of instruction in fractures and on completion of this duty to Plattsburg Barracks, N. Y., for temporary duty, from Plattsburg Barracks, Major ROBERT W. ANDREWS, Poughkeepsie; for a course of instruction in orthopedic surgery from the Army Medical School, Lieuts. ARTHUR H. NYLEN, Brooklyn; EDMUND B. SPAETH, Elmira; JOHN W. McKEEVER, Newburgh; CORNELIUS A. DENEHY, New York.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieuts. EDWARD L. BENJAMIN and LEONARD A. JASLOW, New York; STANLEY S. INGALLS, Rome.

To Camp Custer, Battle Creek, Mich., for duty, from Fort Benjamin Harrison, Lieut. ROSWELL F. FOSTER, Westfield.

To Camp Devens, Ayer, Mass., for duty, Capt. FREDERIC S. COLE, Poland.

To Camp Gordon, Atlanta, Ga., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from the Walter Reed General Hospital, Takoma Park, D. C., Lieut. EDWARD C. EHLERS, New York City.

To Camp Grant, Rockford, Ill., for duty, Lieut. ALLEN N. MOORE, Lockport.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieuts. FREDERIC DAMRAU and WILLIAM L. WOLFSON, Brooklyn; ROBERT P. DOBBIE, Buffalo; CLAUDE E. CHAPIN, Evans Mills; ELBRIDGE A. CARPENTER, PHILIP KORN and MATTHEW F. OLSTEIN, New York City; ERWIN C. MacFARLAND, Rome; WILLIAM W. CARLESTON, Waterloo.

To Camp Jackson, for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, from Camp Wadsworth, Lieuts. EPHRAIM GOLDMAN, New York; EDWARD N. PACKARD, Saranac Lake.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieuts. JOHN E. HESLIN, Albany; RAY H. HUMPHREY, Union.

To Camp MacArthur, Waco, Texas, for duty, from Fort Benjamin Harrison, Major DANIEL A. SINCLAIR, New York.

To Camp Mills, Garden City, L. I., Forty-First Division, for duty, from Allentown, Pa., Lieuts. WILLIAM G. PHILLIPS, Jr., Brooklyn; MARK F. HEALY, New York.

To Camp Sevier, Greenville, S. C., for duty in the genito-urinary and dermatologic section, from Plattsburg Barracks, Lieut. JOSEPH A. LANAHAN, Albany.

To Camp Shelby, Hattiesburg, Miss., for duty in the orthopedic service, Capt. CLARENCE E. COON, Syracuse.

To Camp Sherman, Chillicothe, Ohio, for duty as a member of a board for the special examination of the command for tuberculosis, Capt. CONSTANTINE L. BJERRING, Brooklyn; Lieut. GEORGE H. SHAW, Camillus.

To Camp Travis, Fort Sam Houston, for duty from Fort Riley, Kan., Lieut. FREDERICK G. EATON, Saratoga.

To Camp Upton, Yaphank, L. I., N. Y., for duty as a member of a board for special examination of the command for tuberculosis, from Fort Myer, Lieut. HENRY C. DREW, Brooklyn.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieuts. GEORGE S. PRICE, Fairport; JAMES STEIN, New York City.

To Canal Zone, to report for duty in the pathologic laboratory of the Ancon Hospital, Lieut. RAY S. NELSON, New York City.

To Fort Benjamin Harrison, Ind., Hospital Train 21, for duty from Fort Benjamin Harrison, Lieut. LEO R. TIGHE, Poughkeepsie; for a special course of instruction in tuberculosis examination, Lieuts. SIDNEY TRATTNER, New York City, and ADELBERT C. ABBOTT, Syracuse.

To Fort Leavenworth, Kan., for duty from Reorganization Camp, Syracuse, NOAH P. NORMAN, Watkins.

To Fort Oglethorpe, Ga., Camp McClellan, Anniston, Ala., Camp Sheridan, Montgomery, Ala., Fort McPherson, Atlanta, Ga., Camp Wheeler, Macon, Ga., Camp Hancock, Augusta, Ga., Camp Jackson, Columbia, S. C., Camp Sevier, Greenville, S. C., Camp Wadsworth, Spartanburg, S. C., Camp Greene, Charlotte, N. C., for the purpose of consultation on matters pertaining to nervous and mental diseases, Major PEARCE BAILEY, New York City.

To Fort Oglethorpe, for a course of instruction, Lieuts. SAMUEL N. MOSKOWITZ, Brooklyn; ARTURE C. ARCHE, New York City.

To Fort Omaha, Neb., and report to the commanding officer, United States Army Balloon School, from Fort Benjamin Harrison, Lieut. PHILIP LEHMAN, Brooklyn.

To Fort Riley, Kan., for duty, Lieut. RANSLEY J. MILLER, New York.

To Fort Sheridan, Ill., for duty with Hospital Train B., from Fort Benjamin Harrison, Lieut. LEO R. TIGHE, Poughkeepsie.

To Fort Worth, Texas, Aviation Section, Signal Corps, for duty, Major ATTILIO N. CACCINI, New York City.

To Chicago Neurological School, for intensive training in brain surgery, from Fort Oglethorpe, Capt. RALPH P. HUYCK, Herkimer; Lieut. WELLINGTON A. LEBKICHER, Fordham.

To Gettysburg, Pa., for duty, from Field Hospital No. 30, Fort Ontario, Major ARTHUR W. CUTLER, Oreorta.

To Hoboken, N. J., for duty in base hospital to be established at Camp Merritt, Tenafly, N. J., Capt. EDWARD S. RIMER, West New Brighton.

To Kelly Field, Signal Corps, Aviation School, San Antonio, Texas, from Fort Benjamin Harrison, for duty, Lieuts. JOSEPH BRUMBER and MILTON H. GOLDBERG, Buffalo; JOHN C. LEE and PHILIP J. LIPSETT, New York City; RICHARD P. DOODY, Troy.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. DAVID H. WEBSTER, New York City; GARRETT M. CLOWE, Schenectady; SCOTT R. FISHER, Syracuse.

To Cornell Medical College, New York City, for a course of instruction in military roentgenology, Lieuts. IRVIN S. STARTZ, Blackwell's Island; JAMES J. CLARK, Olean; from Camp Upton, Yaphank, L. I., N. Y., HYMAN I. TEPERSON, Brooklyn; HUGO A. SIEBENEICHEN, New York City.

To New York City, Post-Graduate Medical School and Hospital, for a course of instruction in urology and dermatology, Lieut. MAURICE LENZ, New York City.

To New York City, U. S. Army General Hospital No. 1, for duty, from Fort Benjamin Harrison, Lieut. WILLIAM P. HERRICK, New York City.

To Philadelphia, for the purpose of giving lectures at the Neurological School of the University of Pennsylvania, and on completion of this duty to return to his proper station in this city, Major THOMAS W. SALMON, New York City.

To Philadelphia, School of Plastic and Oral Surgery, for a three weeks' course of intensive training, Capt. CARL EGGERS, New York City.

To Rockefeller Institute, New York City, for a course of instruction, and on completion of this course to proceed to Plattsburg Barracks, from Fort Benjamin Harrison, Lieut. ISADORE SEFF, New York City; from Fort Slocum, New York, Lieut. PERCY H. WILLIAMS, New York City.

To Rockford, Ill., for duty from Fort Benjamin Harrison, Capt. OTTO C. J. VON RENNER, Buffalo; Lieuts. JOSEPH F. WARD, Brooklyn; FLOYD A. BENJAMIN, Cherry Creek; WALBER R. GRUNEWALD, Crescent; VICTOR G. BOURKE, Livingston; JAMES W. BEVERIDGE and HERBERT B. HENSON, New York City; JOHN L. BISHOP, Niagara Falls; RUPERT V. GIBBONS, Oyster Bay; CLAYTON L. GIFFORD, Troy.

To Syracuse, Reorganization Camp, for duty, from Base Hospital No. 32, Fort Porter, N. Y., Lieut. HOWARD C. FAIRBANKS, Tonawanda.

To Takoma Park, D. C., for a special course in tuberculosis examinations, Lieut. EDWARD C. EHLERS, New York City.

To Washington, D. C., and report to the Surgeon-General for duty in his office, Major SIGMUND POLLITZER, New York City.

To Yaphank, L. I., N. Y., for temporary duty, Lieuts. LEON ANTOPOLSKY and MORRIS BROOKS, New York City.

Honorably discharged from the Medical Reserve Corps on account of being physically disqualified for active service, Capt. WILLIAM J. JONES, Jr., and Lieut. FRANCIS A. AULETA, New York.

To the inactive list of the Medical Reserve Corps from duty at Camp Taylor, Washington, D. C., Lieut. ALFRED BRAUN, New York City.

To his home and the inactive list of the Medical Reserve Corps, from Fort Benjamin Harrison, Capt. Sidney Cohn, New York City.

To his home on completion of the course at the school of plastic and oral surgery, Washington University, St. Louis, and returned to the inactive list of the Medical Reserve Corps, Lieuts. SAMUEL L. FISHER, Brooklyn; JOHN L. EDWARDS, Hudson; and ROBERT T. FRANK, New York.

North Carolina

To Camp Beauregard, Alexandria, La., for duty, Lieuts. ANDREW B. HOLMES, Council; CHARLES T. ROEBUCK, Williamston; from Fort Oglethorpe, RANDOLPH E. WATTS, Oriental.

To Camp Greene, Charlotte, N. C., for duty in the surgical service, from Fort Oglethorpe, Lieut. WILLIAM W. GREEN, Tarboro.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. CHARLES A. HENSLEY, Burnsville.

To Camp Jackson, Columbia, S. C., for duty from Fort Oglethorpe, Lieuts. PINKNEY J. CHESTER, Mooresville; GEORGE B. MORRIS, Mount Olive; ALFRED MORDECAI, Raleigh.

To Camp Sevier, Greenville, S. C., for duty, Capt. RAYMOND POLLOCK, New-Bern.

To Camp Wheeler, Macon, Ga., for duty, from Fort Oglethorpe, Lieuts. NUMA H. CREWS, Henderson; HECTOR McL. PERSON, Saulston; CHARLES L. SWINDELL, Wilson.

To New Orleans, Charity Hospital, for a course of instruction on fractures, and on completion to proceed to Camp Gordon, for duty as surgical chief, Major JAMES S. BROWN, Hendersonville; on completion of this course to proceed to Camp Kearney, Linda Vista, Calif., for temporary duty as surgical assistant, Lieut. LAURIE J. ARNOLD, Lillington.

To Walter Reed General Hospital, Takoma Park, D. C., for a special course of instruction in tuberculosis examination, Lieut. JOHN S. McKEE, Raleigh.

North Dakota

To Camp American University, Washington, D. C., for duty with the Thirtieth Engineers, from the Army Medical School, Lieut. EDWARD F. KENNEDY, White Earth.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. AXEL W. SWENSON, Bisbee.

To Fort Oglethorpe, for a course of instruction, Lieut. JOHN P. GREAVES, Sherwood.

Ohio

To Boston, for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. OTTIS L. GRAHAM, Kinsville.

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Capt. ODOS A. HOPKINS, Middlefield; Lieut. SHERMAN E. G. PEDIGO, Marshfield.

To Camp Cody, Deming, N. M., for duty, Lieut. FRANK E. SNIDER, Madisonville.

To Camp Custer, Battle Creek, Mich., for duty, Lieut. WILMER E. GRIFFITH, Hamilton.

To Camp Devens, Ayer, Mass., for duty at the Remount Station, from Fort Riley, Lieut. JULIEN E. BENJAMIN, Cincinnati.

To Camp Dodge, Des Moines, Iowa, for duty at the Remount Station, from Camp Funston, Fort Riley, Kan., Lieutenant BENJAMIN, Cincinnati.

To Camp Doniphan, Fort Sill, Okla., for duty, from Fort Riley, Lieut. WILLIAM P. V. EVERS, Tedrow.

To Camp Greenleaf, Fort Oglethorpe, Ga., for a course of instruction, Capts. STARR FORD, Cincinnati; RUFUS SOUTHWORTH, Glendale; Lieuts. ROBERT R. SATTLER and RALPH W. STALEY, Cincinnati; FRANK S. GIBSON, Cleveland; JOYCE WARWICK VAN LUE, Gettysburg.

To Camp Jackson, Columbia, S. C., for duty from Fort Oglethorpe, Lieut. VERNON G. DANFORD, Trimble.

To Camp MacArthur, Waco, Texas, for duty, from Fort Benjamin Harrison, Capt. ORRA L. NORRIS, *Deshler;* Lieuts. CHARLES H. WELLS, Columbus; WILLIAM T. STEWART, Morning Sun.

To Camp Mills, Garden City, L. I., Forty-First Division, for duty, from Allentown, Pa., Lieut. THOMAS R. KENNERDELL, Cleveland.

To Camp Sheridan, Montgomery, Ala., for duty, Lieut. RALPH W. HARDINGER, Cincinnati.

To Camp Travis, Fort Sam Houston, Texas, for duty, from Fort Riley, Kan., Lieuts. CLARENCE M. DOUTHITT, Athens; MORTON R. KITTREDGE, *Evansport;* CARL E. EDWARDS, Jolly; HERMAN O. HODSON, Washington.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieuts. HARRY C. CRAGG, Cincinnati; JOHN H. NORRICK, Fredricktown; CHARLES C. MANDEVILLE, Galion.

To Chicago Neurological School, for a course of instruction in brain surgery, Lieuts. CHARLES E. KIELY, Cincinnati; from Fort Benjamin Harrison, SAMUEL ZIELONKA, Cincinnati.

To Cincinnati, Aviation Section, Signal Corps, for duty, Capt. ARTHUR C. BACHMEYER, Cincinnati.

To Fort Benjamin Harrison, Ind., for a special course of instructions in tuberculosis examination, Lieuts. MARION WHITACRE, Cincinnati; CHARLES R. DEEDS, *Dalton.*

To Fort Oglethorpe, for a course of instruction, *Lieuts. ARTHUR* L. STOTTER, Cleveland; CARROLL H. SKEEN, Greenfield; CLYDE B. TERWILLEGAR, Milford.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. JOHN C. LARKIN, *Hillsboro.*

To New York City, Bellevue Hospital, from Fort Riley, *for* a course of *instruction on* fractures and on completion of this duty to Camp Bowie, Fort Worth, Texas, for temporary duty as surgical assistant, Lieut. SAMUEL C. SMITH, *Ada;* on completion of the duty to Fort McPherson, Ga., for temporary duty, from Fort Oglethorpe, Lieut. FLOYD W. McRAE, Jr., Cleveland.

To Cornell Medical College, New York *City, for* a course in military *roentgenology,* Lieut. HORACE K. BECKWITH, *Toledo.*

To Philadelphia, School of Plastic and Oral Surgery, Evans Dental Institute, for a three weeks' course of intensive training, from Columbus Barracks, Capt. JOHN W. MEANS, Columbus; Lieut. LOUIS H. SCHRIVER, Cincinnati.

To Pittsburgh, from Fort Benjamin Harrison, *for* a course of instruction on fractures, and on *completion of this duty to* proceed to Camp Meade, Annapolis Junction, Md., *for* temporary duty as surgical assistant, Capt. ROBERT C. RIND, Springfield; on completion of the duty to *Camp* Pike, *Little Rock, Ark.,* for temporary duty as surgical assistant, Lieut. HERMAN P. McGAY, *Cleveland; on* completion of this duty to proceed to Jefferson Barracks, Mo., for duty as surgical assistant, Lieut. DELBERT E. HOOVER, *Warren.*

To Rockefeller Institute, New York City, for a course of instruction in laboratory *work, from* Allentown, Pa., Lieuts. ROY P. FORBES, Cleveland; WILLIAM H. BUNN, Youngstown; from Fort Thomas, Ky., *JOSEPH C. RANSOHOFF,* Cincinnati.

To St. Louis, School of Plastic and Oral Surgery, Evans Dental Institute, for a three weeks' course *of intensive* training in head *surgery, from* Fort Oglethorpe, Lieut. ARTHUR J. McCRACKEN, Bellefontaine; School *of* Plastic and Oral Surgery, Washington University, for a three weeks' course of *intensive training* in head surgery, from Fort Oglethorpe, Lieut. THOMAS A. MITCHELL, Owensville.

Oklahoma

To Camp Beauregard, Alexandria, La., for duty, Lieuts. FRANCIS R. FIRST, Cashion; CLAUDE E. PUTNAM, Oklahoma City; GEORGE W. TILLY, *Pryor.*

To Camp Cody, Deming, N. M., for duty, Lieut. ULUS E. NICKELL, Davenport.

To Camp Doniphan, Fort Sill, Okla., for duty, Lieuts. DANIEL S. LEE, Guymon; PAUL R. SIBERTS, Cooperton.

To Camp Jackson, Columbia, S. C., for duty, from Fort Oglethorpe, Lieut. FRANK W. ROGERS, Carnegie.

To Camp Logan, Houston, Texas, *for duty from* Fort Riley, Lieut. ISAAC F. CLARK, Avant.

To Camp MacArthur, Waco, *Texas,* for duty, Lieuts. WILLIAM A. L. GOSSEY, Prague; JOSEPH H. JANSING, Tryon.

To Chicago Neurological School, Presbyterian Hospital, for intensive training in brain surgery, *from* Fort Benjamin Harrison, Lieut. Fred *L. Patterson, Fargo.*

To Minneola, L. I., for duty, Aviation Section, Lieuts. MONTIE C. COMER, Clinton; ROBERT C. McCREERY, Erich; GEORGE A. *NYLUND, Gate;* ROSS D. LONG, Oklahoma.

Oregon

To Camp America University, Washington, D. C., for duty with the Thirtieth Engineers from Fort Leavenworth, Kan., Lieut. PHILIP J. KEISER, North Bend.

To Camp Beauregard, Alexandria, La., for duty as plastic and oral surgeon, section *of the* head, from School of Plastic and Oral Surgery, Washington University, St. Louis, *Capt.* JUSTIN M. WAUGH, Hood River.

To Camp Kearney, Linda Vista, Calif., for duty as a member of a board for the special examination of tuberculosis, Lieut. LEON G. HOLLAND, Portland.

To Camp Lewis, American Lake, Wash., for duty at the remount depot, Lieut. WILL H. POTTER, Scio.

To Camp Logan, Houston, Texas, for duty, from Fort Riley, Lieut. JOHN N. SMITH, Salem

Pennsylvania

To Army Medical School, Washington, D. C., for the required course of instruction, Lieut. ROBER SHOEMAKE, Ogontz.

To Boston, for a course of instruction in orthopedic surgery, Lieuts. ALBERT W. GREENWALL, HENRY K. B. HUFFORD, Philadelphia; HAROLD D. ROGERS, West Chester; SUMMER C. SIMPSON.

To Camp Dix, Wrightstown, N. J., for duty, from Fort Oglethorpe, Lieut. RUSSELL G. WITMAN, Conshohocken.

To Camp Gordon, Atlanta, Ga., from Camp Greenleaf, Fort Oglethorpe, Ga., Lieuts. ANDREW ANDERS, HENRY C. *GODFREY,* Philadelphia; *for* duty as member of a board of medical officers for the special examination of the command for tuberculosis, AUGUSTUS H. EGGERS, Pittsburgh.

To Camp Greene, Charlotte, N. C., for duty as assistant *to the* chief of the *medical* service, from Fort Benjamin Harrison, Lieut. PHILIP A. SHEAFF, Philadelphia.

To Camp Greenleaf, Fort Oglethorpe, Ga., *for* a course of *instruction,* Capt. CLARENCE F. M. LEIDY, Philadelphia; Lieuts. IVOR D. FENTON, Mahanoy City; JOHN ALEXANDER, WILLIAM V. COYLE, Philadelphia; FRANK W. McCORKLE, *Pittsburgh.*

To Camp Hancock, Augusta, Ga., for duty, from Camp Wadsworth, Major WILLIAM P. BARNDOLLAR, Pittsburgh.

To Camp Jackson, Columbia, S. C., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Major JOHN W. BOYCE, Pittsburgh; Lieuts. URBAN H. REIDT, Jeanette; EDGAR N. COWEN, Philadelphia; for duty from Fort Oglethorpe, JOSEPH C. McFATE, Meadville; AUGUSTINE J. MULLIGAN, Mont Alto; HARRY CHERASHORE, ADOLPH H. FRIEDMANN, WILLIAM HANNUM, Philadelphia; CLARENCE W. LURTIG, DAVID McCULLOCH, Pittsburgh.

To Camp Lee, Petersburg, Va., for duty, Lieut. CHESTER S. SIERAKOWSKI, *McKees Rocks.*

To Camp Logan, Houston, Texas, *for* duty from Fort Riley, Lieuts. JOHN R. MARTIN, Bitner *Gap;* FRANCIS I. STUART, Philadelphia.

To Camp MacArthur, Waco, Texas, *for* duty, from Fort Benjamin Harrison, Lieuts. GEORGE B. BEACH, Scranton; CLAUDE W. WALKER, Schenectady.

To Camp Meade, Annapolis Junction, Md., *for* duty, Lieut. WARREN H. BUTZ, Cornwells.

To Camp Mills, Garden City, L. I., *Forty-First Division,* for duty from Allentown, Pa., Lieuts. DWIGHT E. LONG, Freeburg; CHARLES J. CAVANAUGH, JOSEPH W. DENNIN, Philadelphia; WALTER *E. LANG,* Allentown; HERBERT L. RANSOM, Pittston; CONNEL E. MURRIN, Scranton; JAMES L. JUNK, *Connelsville;* DONALD D. JOHNSTON, Philadelphia.

To Camp Pike, Little Rock, Ark., for duty, Lieut. THOMAS McS. BARRETT, Dixmont.

To Camp Sevier, Greenville, S. C., for duty, Lieut. BRADLEY H. HOKE, Coalport.

To Camp Shelby, Hattiesburg, Miss., from Camp Greenleaf, Lieut. ADDISON M. ROTHROCK, Reading.

To Fort Sheridan, Ill., for duty, with Hospital *Train* B., *from* Fort Benjamin Harrison, Lieut. SIGMUND S. *GREENBAUM,* Philadelphia.

To Camp Travis, Fort Sam *Houston,* Texas, for duty, Lieut. THOMAS G. GREIG, Pittsburgh.

To Camp Upton, Yaphank, L. I., N. Y., for duty in the genitourinary and dermatologic section, Lieut. JOSEPH V. KLAUDER, *Philadelphia.*

To Camp Wheeler, Macon, Ga., for duty from Fort Oglethorpe, Lieuts. JACOB J. SCHWEGLER, Kennett Square; WILLIAM F. CRAIG, Philadelphia.

To Fort Benjamin Harrison, Hospital Train 21, for duty, from Medical *Officers* Training Camp, Fort Benjamin *Harrison,* Lieut. SIGMUND S. GREENBAUM, Philadelphia.

To Fort Monroe, Va., for duty in *the laboratory* of the hospital in connection with pneumonia work, from Army Medical School, Lieut. MAURICE GOLDBERG, Philadelphia.

To Fort Sam Houston, Texas, for treatment at the base hospital, from Austin, Texas, Lieut. GEORGE W. H. CONRAD, Philadelphia.

To Fort Worth, Texas, *Aviation* Section Signal Corps, for duty, Lieut. EPHRAIM E. CAMPBELL, Butler.

To Chicago Neurological School, for a course of instruction, on completion of which to return to his home and to the inactive list of the Medical Reserve Corps, Major SAMUEL VICTOR KING, Pittsburgh; for intensive training in brain *surgery,* and *on* completion of this duty to return to his proper station, from Camp Greenleaf, Fort Oglethorpe, Ga., Capt. DAVID O. THOMAS, New *Kensington; Lieuts.* WILLIAM J. POTTS, Greensburg; THOMAS P. MARTIN, Mayfield; ERNEST W. DOWNTON, Starruca; DENNIS R. MURDOCK, Greensburg.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. WILLIAM S. SHIMER, Philadelphia; JAMES E. DULL, Somerset; FOSTER A. BECK, Wind *Gap, Pa.;* JAMES M. HAMMETT, Winburne.

To New Orleans, Charity Hospital, for a course of instruction on fractures, and *on* completion to proceed *to* Camp Wadsworth, *for* duty as surgical assistant, Capt. STILLWELL C. BURNS, Philadelphia; for a course of instructions on fractures, and on completion of this duty to Houston, Texas, Camp Logan, for temporary duty as surgical assistant, Lieut. JAMES C. MURFIN, Philadelphia.

To New York City, for instruction in orthopedic work, *from Army* Medical School, Lieuts. PHILIP J. LUKENS, Jr.; CHARLES E. YOHO, *Philadelphia.*

To New York City, Bellevue Hospital, from Fort Oglethorpe, for a course of instruction on fractures and on completion of this duty to Camp Green Charlotte, N. C., *for* temporary duty as surgical *assistant* and anesthetist, Lieut. WALTER B. HARVEY, Pittsburgh; *from* Walter Reed General *Hospital, Takoma Park,* D. C., *for* a course of instruction on fractures and on completion of this duty to return to his *proper* station, Lieut. BASIL R. BELTRAM, Philadelphia.

To Philadelphia, Pa., University *Hospital,* for a course of instruction on fractures and on completion of this duty to Camp Sevier, Greenville,

S. C., for temporary duty, from Camp Greenleaf, Fort Oglethorpe, Capt. McE. LUMAN, Uniontown; for a course of instruction on fractures and on completion of this to proceed to Camp Meade, Annapolis Junction, Md., for duty as surgical assistant, from temporary duty at Camp Meade, Lieut. HAROLD E. HERSH, Palmerton.

To Philadelphia, Pennsylvania School of Plastic and Oral Surgery, Evans Institute, for a course of instruction and on completion to return to his proper station, Lieut. CHARLES W. HOFFMAN, Rimersburg.

To Rockefeller Institute, New York City, for a course of instruction and on completion of this duty to proceed to Camp Hancock, Augusta, Ga., for temporary duty, from Camp Hancock, Augusta, Ga., Lieut. GEORGE M. LAWS, Philadelphia.

To Rockford, Ill., for duty from Fort Benjamin Harrison, Major ARTHUR W. YALE, Philadelphia.

To St. Louis, School of Plastic and Oral Surgery, Washington University, for a three weeks' course of intensive training in head surgery, from Fort Oglethorpe, Lieut. THOMAS S. HICKS, Braddock.

To Yaphank, L. I., N. Y., for duty, from Camp Upton, Lieut. SAMUEL H. BETTLER, Brighton.

To his home and the inactive list of the Medical Reserve Corps, Capt. ARTHUR C. MORGAN, Philadelphia.

To his home and the inactive list of the Medical Reserve Corps, on account of being physically disqualified for active service, Lieut. HAROLD A. CHERING, Edinboro

To his home on completion of the course at the school of plastic and oral surgery, Washington University, St. Louis, and returned to the inactive list of the Medical Reserve Corps, Lieut. WILLIAM BATES, Philadelphia.

Honorably discharged from the Medical Reserve Corps, Lieut. FRANCIS A. McMULLIN, Philadelphia.

Rhode Island

To Boston, for duty in connection with the division of otolaryngology, section of surgery of the head, Capt. ALVAH A. FISHER, Providence.

To Rockford, Ill., for duty from Fort Riley, Lieut. BYRON J. BROWN, Providence.

South Carolina

To Camp Jackson, Columbus, S. C., for duty, from Fort Oglethorpe, Lieuts. JAMES A. NORTON, Conway; FRANK D. MOWER, Newberry.

To Camp Wadsworth, Spartanburg, S. C., for duty, Lieut. BENTON McQ. MONTGOMERY, Kingstree.

To Fort Oglethorpe, for a course of instruction, Lieuts. DANIEL D. STRAUSS, Bennettsville; *DAVID L. BRYSON,* Winnsboro.

To Philadelphia, for temporary duty in the Aviation Section, Signal Corps, and on completion to return to Charleston, S. C., for duty in the *physical* examining unit, *Aviation Section, Signal Corps, Capt.* CHARLES W. KOLLOCK, Charleston.

South Dakota

To Camp Beauregard, Alexandria, La., for duty, from Fort Riley, Lieut. FRED F. KEENE, *Wessington Springs.*

To Camp Dodge, Des Moines, Iowa, for temporary duty, Capt. ALBERT E. BROWN, *Webster.*

Tennessee

To Army Medical School, Washington, D. C., *for the required course of* instruction, Lieut. STEWART LAWWILL, Chattanooga.

To Camp Beauregard, Alexandria, La., for duty, Lieut. JOHN W. FROST, *Dyer.*

To Camp Jackson, Columbia, S. C., for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Lieuts. LEOPOLD SHUMACKER, Chattanooga; OWEN S. DEATHERIDGE, Nashville; for duty, from Fort Oglethorpe, Lieut. JUSTIN E. LACY, Jasper.

To Camp Sevier, Greenville, S. C., from Fort Oglethorpe, for duty, Lieuts. GEORGE E. WILSON, Cardiff; HERBERT ACUFF, Knoxville: KYLE C. COPENHAVER, Mascot; WILLIAM H. DELOP, *LaFollette.*

To Fort Oglethorpe, for a course of instruction, Lieuts. WILLIAM K. VANCE, Jr., Bristol; WENDALL P. BAUGH, Elkton; THOMAS W. MENSEE, Nashville; WILLIAM A. CASHION, Puryear.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieut. CLYDE C. HARDISON, Lewisburg.

To New Orleans Charity Hospital, for a course of instruction on fractures, and on completion of this course to proceed to Hattiesburg, Miss., for temporary duty as surgical assistant, from Fort Oglethorpe, Lieut. DANIEL B. CLIFFE, Franklin.

To St. Louis School of Plastic and Oral Surgery, Washington University, *for a three weeks' course of intensive training in head surgery,* from Fort Oglethorpe, Lieut. DORSEY T. GOULD, Lawrenceburg.

Texas

To Army Medical School, Washington, D. C., for the required course of instruction, Lieut. WILLIAM E. NESBIT, *San Antonio.*

To Boston, for a course of instruction in orthopedic surgery, *from* the Army Medical School, Lieuts. EDMUND D. MILLS, *Galveston;* ROBERT L. HOWELL, *Snyder.*

To Camp Bowie, Fort Worth, Texas, for duty, Lieut. ROBERT B. WOLFORD, Childress.

To Camp Cody, Deming, N. M., for duty, Lieuts. HENRY BRADBROOK, Cat Springs; ROBINSON H. SALMON, Maypearl; JOSEPH V. DOZIER, Menard; ISADOR BRAUN, Shiner.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. JESSE LEE HALL, Bertram.

To Camp Logan, Houston, Texas, for duty from Fort Riley, Capt. ALE OLSON, Morse.

To Camp MacArthur, Waco, Texas, for duty, Lieuts. JOHN W. BROWN, Pearsall; WESLEY S. NEAL, Weatherford.

To Camp Travis, Fort Sam Houston, Texas, for duty as a member of a board of medical officers for the special examination of the command for tuberculosis, Capt. GEORGE S. MILNEA, Houston; for duty as plastic and oral surgeon, section of surgery of the head, from School of Plastic and Oral Surgery, Washington University, St. Louis, Capt. ROBERT F. MILLER, Brenham.

To Fort Oglethorpe, for a course of instruction, Lieuts. ERNEST J. STEVES, San Antonio; C. ZENO HOLT, Texaline.

To Love Field, Hawes, Texas, for duty with the Signal Corps, Aviation School, Lieut. JAMES T. COLWICK, Dallas.

To Mineola, L. I., Aviation Section, Signal Corps, for duty, Lieuts. CLIFFORD C. PARRISH, Fort Worth; OMER O. GAIN, Honey Grove; GARNETT MILLER, Moody; AARON L. ROBERTS, Myra; ARTHUR G. NEIGHBOR, Rosenberg; HENRY W. PICKETT, Sulphur Springs.

To New Orleans Charity Hospital, for a course of instruction in fractures and on completion of this duty to Camp Logan, Houston, Texas, Thirty-Third Division, for temporary duty in the base hospital, from base hospital, Camp Logan, Houston, Texas, Lieut. WILLIAM P. BARTON, Overton.

To report by telegraph to the commanding general, Southern Department, for assignment to duty, from Camp Cody, Deming, N. M., Capt. JOSEPH S. JONES, Galveston.

To report by wire to the commanding general, Southern Department, for assignment to duty, Lieuts. MARCUS M. CARR, GEORGE B. MILLER, Dallas.

Utah

To Fort Oglethorpe, for the required course of instruction, from Camp Beauregard, Alexandria, La., Lieut. FRANCIS C. TYNG, Salt Lake City.

Vermont

To Boston City Hospital, from Fort Ethan Allen, Vt., for a course of instruction in fractures and on completion of this course to proceed to Fort Ethan Allen, Vt., and report to the commanding general, Northeastern Department, Lieut. ROBERT L. MAYNARD, Burlington.

Virginia

To Boston, for a course of instruction in orthopedic surgery, from the Army Medical School, Lieut. PERCY E. DUGGINS, Norfolk.

To Camp Greenleaf, Fort Oglethorpe, for a course of instruction, Lieut. FRANK L. WYSOR, Clifton Forge.

To Mineola, L. I., N. Y., Aviation Concentration Camp, for duty, from Essington, Pa., Capt. JOSEPH N. BARNEY, Fredericksburg; Lieut. HARRY D. HOWE, Hampton.

To Philadelphia, School of Plastic and Oral Surgery, Evans Dental Institute, for a three weeks' course of intensive training, Lieut. SAMUEL P. CAST, Portsmouth.

To return to the inactive list of the Medical Reserve Corps, Lieut. HARRY D. HOWE, Hampton.

Washington

To Chicago Neurological School, for a course of instruction in brain surgery, Lieut. GEORGE W. SWIFT, Seattle.

To communicate by telegraph with the commanding officer, Western Department, for assignment to duty, Capt. ALBERT LESSING, Seattle.

To communicate by telegraph to the commanding general, Western Department, for assignment to duty, Capt. MARION M. NULL, Seattle.

To Fort Oglethorpe, Ga., for a course of instruction, Lieut ARTHUR B. GOULD, Kent.

West Virginia

To Camp Meade, Annapolis Junction, Md., for duty, Lieut. MICHAEL P. LINK, *Matewan.*

To Camp Greenleaf, Fort Oglethorpe, Ga., for a course of instruction, Lieut. *JULIUS C. SCHULTZ,* Huntington.

To Camp Lee, Petersburg, Va., for duty, Lieuts. HARLOW R. CONNELL, Kimball; JOHN S. GIBSON, Wevaco.

To Camp MacArthur, Waco, Texas, for duty, from Fort Benjamin Harrison, Lieut. GEORGE W. SHRIVER, Clendenin.

To Fort Oglethorpe, for a course of instruction, Lieut. RUFUS E. WOODALL, Charleston.

Honorably discharged from the Medical Reserve Corps, on account of being physically disqualified for active service, Lieut. JAMES R. *VERMILLION,* Princeton.

Wisconsin

To Boston, Massachusetts General Hospital, from Medical Officers' Training Camp, Fort Riley, for a course of instruction on fractures and on *completion of this duty to Camp Pike, Little Rock, Ark.,* for temporary duty as surgical assistant, Lieut. FRANK H. RUSSELL, Neenah.

To Camp Beauregard, Alexandria, La., for duty, Lieut. JOHN E. McGINNIS, Green Bay.

To Camp Custer, Battle Creek, Mich., for duty, Capt. CLEMENT F. DOUGHERTY, Richland Center.

To Camp Doniphan, Fort Sill, Okla., for duty from Fort Riley, Kan., Lieut. HARRY E. MacLAUGHLIN, Waupaca.

To Camp Grant, Rockford, Ill., for duty, Lieut. WILLIAM T. LOCHEMES, Milwaukee.

To Camp Logan, Houston, Texas, for duty from Fort Riley, Lieuts. WILLIAM H. *REMER, Chaseburg; LESLIE J. PHILLIPS,* Weyerhauser.

To Camp Travis, Fort Sam Houston, Texas, for duty, *from Fort* Riley, Kan., Lieut. ERNEST C. HOWELL, Fennimore; RALPH T. GILCHRIST, Milwaukee; JOHN H. HOGAN, Racine.

To Fairfield, Ohio, Signal Corps, Aviation Section, for duty with the squadron at that station, Capt. WILL G. MERRILL, Grand Rapids.

To Fort Oglethorpe, for a course of instruction, Lieuts. JAMES G. CONLEY, Darlington; LEON H. FLANCHER, Milwaukee.

To Kelly Field, Signal Corps, Aviation School, San Antonio, Texas, from Fort Benjamin Harrison, Lieut. JAMES J. FITZGERALD, Eagle.

To Los Angeles, for a course of *instruction* in military roentgenology, Lieut. JAMES P. GILLIS, Deerbrook.

Medical News

(Physicians will confer a favor by sending for this department items of news of more or less general interest; such as relate to society activities, new hospitals, education, public health, etc.)

CALIFORNIA

New Officers Elected.—At a meeting of the California Board of Medical Examiners, held October 15, the following officers were elected: Dr. Percy T. Phillips, Santa Cruz, president; Dr. Harry V. Brown, Los Angeles, vice president, and Dr. Charles B. Pinkham, San Francisco, secretary-treasurer.

New Tuberculosis Sanatorium.—The board of supervisors of Los Angeles County has recommended the purchase of the 454-acre Wilson ranch property at Sylmar, in the San Fernando Valley, as a site for a tuberculosis sanatorium for the joint use of Los Angeles, Santa Barbara and Ventura counties. It is planned to expend $100,000 for the erection of buildings, of which Los Angeles will appropriate $70,000, the balance being divided between Santa Barbara and Ventura counties.

DISTRICT OF COLUMBIA

Physicians Plan Club.—The District Medical Society is planning to erect a club house to cost $100,000. The building will have an amphitheater with a seating capacity of 600.

Society Celebrates Centennial.—October 17, the Medical Society of the District of Columbia celebrated its one hundredth anniversary. The meeting was held at the New National Museum, and was presided over by Dr. G. Wythe Cook, who made an address formally instituting the celebration of the society centennial. Addresses were then made by Dr. Guy Steele, Cambridge, president of the Medical and Chirurgical Society of Maryland; Dr. John Champlin, president of the Rhode Island Medical Society, and Dr. Elmer B. Cooley, Danville, president of the Illinois State Medical Society. A historical address was delivered by Dr. Daniel Smith Lamb. At the centennial banquet held at the Hotel Raleigh in the evening, Dr. Joseph Stiles Wahl officiated as toastmaster.

GEORGIA

Tuberculosis Clinics.—At the trimonthly meeting of the Central Council of Charitable and Philanthropic Organizations of Savannah, held October 9, recommendations were made for the establishment of three tuberculosis clinics.

License Revoked.—A report from the State Board of Medical Examiners of Georgia states that the license of Dr. Charles W. Miller, Atlanta, has been revoked on the ground that he had sold forged eclectic licenses to two individuals to practice medicine.

First District Physicians Elect Officers.—At the annual meeting of the Congressional District Medical Society, held in Savannah, Statesboro was selected as the next place of meeting, and the following officers were elected: president, Dr. Robert L. Miller, Waynesboro, and vice presidents, Drs. Luther A. De Loach, Glennville, and Antonio J. Waring, Savannah.

New State Board Members and Officers.—Dr. Alexander G. Little, Valdosta, has been appointed by the governor as a member of the State Board of Medical Examiners of Georgia, in place of Dr. Frederick D. Patterson, Cuthbert, term expired. Dr. Henry W. Terrell, La Grange, was appointed to fill the vacancy caused by the death of Dr. Francis M. Ridley. At the October meeting of the board, Dr. Jarrett W. Palmer, Ailey, was elected president; Dr. Alfred F. White, Flovilla, vice president, and Dr. Charles T. Nolan, Marietta, secretary-treasurer.

ILLINOIS

Billings and His Russian Experiences.—Dr. Frank Billings, head of the American Red Cross Mission to Russia, will narrate his experiences at the benefit meeting for Russian War Relief, to be held in Orchestra Hall, Chicago, November 13, by the Chicago Anti-Cruelty Society.

Red Cross Council Named.—Dr. George T. Palmer, Springfield, president of the Illinois Tuberculosis Association, has appointed the following as war council to have charge of the sale of 1917 Red Cross seals in the state: Dr. Frank Billings, Chicago; Dr. C. St. Clair Drake, director of the Illinois Department of Public Health; Dr. James W. Pettit, Ottawa, and Mr. W. T. Thurber, association director of the Red Cross for Illinois.

Personal.—Dr. Arrie Bamberger, Chicago, has been appointed attending physician at Cook County Hospital.——Lieut. Walter D. Stevenson, M. R. C., U. S. Army, Quincy, has been ordered to active duty at Camp Sherman, Chillicothe, Ohio, and has been placed in charge of the division of surgery of the head.——Dr. Jonathan M. Wyland, Moline, underwent an operation on the spine, at Mercy Hospital, Davenport, November 2.

Merger of Societies.—It is suggested that ex-interns of the Illinois Charitable Eye and Ear Infirmary, Chicago, who have been gathering about once a year for clinics and discussions, join with graduate interns of other recognized hospitals for the care of the diseases of the eye, ear, nose and throat, that a larger organization may be formed and greater good accrue to the membership. For particulars regarding this new organization, ex-interns are requested to address Dr. Ralph H. Woods, La Salle.

Chicago

Physicians' Club Gives Banquet to Billings.—At a testimonial banquet given to Dr. Billings by the Physicians' Club of Chicago, November 1, a special event was the presentation to Dr. Billings of a silver loving cup with the following inscription:

> "To our friend, Dr. Frank Billings, the great scientist, philanthropist, and patriot. Presented by the Physicians' Club of Chicago, Nov. 1, 1917."

The cup was presented to Dr. Billings, on behalf of the club, by Governor Frank O. Lowden of Illinois, who was introduced by Dr. A. M. Corwin, president of the club. Governor Lowden said in part:

> "The very pleasant duty falls to me tonight to present this handsome loving cup to your distinguished guest of honor. I appreciate more than I can express that this cup has been put in my hands to be placed in his. All of us not only admire Dr. Billings for his great ability during all these years, but personally I have a deep affection for him, and I know that I voice the sentiments of not only those present, but the people of Illinois and of other states when I say that he has justly earned this gift on account of the great and distinguished services he has rendered to humanity, to his country, and as I believe, to the world."

Dr. Arthur O'Neil was next introduced as toastmaster of the evening. Other speakers who addressed the meeting were the Russian Consul, J. Antoine Volkoff, Marquis Eaton of the Chicago chapter of the Red Cross, Dr. Arthur Dean Bevan, President of the American Medical Association, and Dr. William E. Quine.

INDIANA

Conference on Mental Defectives.—The Indiana Society of Mental Hygiene, and the State Committee on Mental Defectives will hold a general conference on mental defects, at the Hotel Claypool, Indianapolis, November 13.

Bonds for Hospital Sold.—A bond issue of $100,000 for the Allen County Tuberculosis Hospital was sold, October 13, to the German-American National Bank of Fort Wayne on a bid of $371 premium. Work on the hospital will be started as soon as the contract is awarded.

Personal.—Dr. Joseph E. Sharp, Indianapolis, was shot and seriously wounded, October 27, by an Italian, who was frenzied with grief on account of the death of his child.——Dr. Oscar E. McWilliams, Anderson, is ill at his home.——Dr. Otto B. Pettijohn was run down by an automobile in Indianapolis, October 22, and was seriously injured about the head and shoulders.—Dr. Solomon P. Stoddard, Indianapolis, was struck and slightly injured by an automobile, October 22.——Dr. Adrian E. Fauve, Fort Wayne, has arrived in Europe.——Dr. Edmund M. Van Buskirk has been appointed president of the Fort Wayne Board of Health, succeeding Dr. Henry O. Bruggeman, resigned to enter the military service.——Dr. Harmer M. Newman, South Milford, is reported to be critically ill.——Dr. Alfred Henry, Indianapolis, has been elected president of the Mississippi Valley Conference on Tuberculosis.

MARYLAND

Training in Hospitals.—The Johns Hopkins Hospital and the South Baltimore Eye, Ear and Throat Hospital have come forward and offered to take some of the men stationed at Fort McHenry and give them practical training. The Hopkins has taken six men, while the South Baltimore Eye, Ear and Throat Hospital has asked for four.

Dinner for Physicians.—A dinner was recently given at the Belvedere Hotel by a number of officers of the Medical

Reserve Corps, selected by the Surgeon-General's Office to take special studies in psychiatry at the Henry Phipps Psychiatric Clinic, in honor of their teachers, Dr. Adolf Meyer, Dr. Charles M. Campbell and Dr. Francis L. Dunham.

Personal.—Dr. Harry S. Jarrett of Towson is a patient at the Mercy Hospital, in Baltimore, where he has been ordered to take absolute rest for several weeks.——Dr. Albert G. Webster, Belmar, has been appointed health officer of the Fourteenth District of Baltimore County, succeeding Dr. William F. Clayton, Overlea, deceased.——Dr. William S. Baer, Baltimore, who went across with the Johns Hopkins unit, has arrived in Paris.

Committee to Study Schoolchildren.—A committee was appointed at a meeting in Baltimore, October 26, to make a survey of all children attending school to determine the number of mentally deficient pupils in Baltimore schools. It will be given a hearing at a meeting of the school board, whose cooperation will be asked in following up the plan. Dr. F. J. Dunham of the Henry Phipps Clinic, Johns Hopkins University, Dr. William T. Howard of the city health board, Dr. Anna D. S. Abercrombie, examining physician of the Bureau of Labor and Statistics, Dr. Arthur P. Herring of the State Lunacy Commission and Mr. J. W. Chapman, Jr., president of the school board, have discussed the question of the best method to adopt to overcome the obstacles that now confront mentally deficient children.

MISSOURI

Social Service Department Opened.—The Barnard Free Skin and Cancer Hospital, St. Louis, has opened up a social service department with two social workers for the investigation of the social side of cancer.

State Board Election.—At a recent meeting of the Missouri State Board of Health, the following officers were elected: president, Dr. Wilson J. Ferguson, Sedalia; vice president, Dr. T. Hurley Wilcoxen, Bowling Green, and secretary, Dr. George H. Jones, Jefferson City. The other members of the board are Dr. Thomas A. Son, Bonne Terre; Dr. Marc R. Hughes, St. Louis; Dr. William A. Clark, Jefferson City, and Dr. Tolman W. Cotton, Van Buren.

Mount St. Rose Sanitarium Rebuilds.—Mount St. Rose Sanitarium, St. Louis, has recently added a new building at a cost of $140,000, the whole plant representing an investment of about $350,000. This institution is devoted exclusively to the care and treatment of tuberculosis, and is the first institution of its kind in the Middle West. It is conducted by the Sisters of St. Mary, and was established by them in 1902. Dr. Louis C. Boisliniere is the medical director.

Personal.—Dr. James E. Ball, Richmond, has been appointed a member of the medical staff of State Hospital No. 2, St. Joseph.——Dr. Elmer T. McGaugh, Richmond, has been appointed physician of Buchanan County, succeeding Dr. James E. Ball.——Dr. John W. Vaughan, St. Louis, was seriously injured in a collision between his automobile and a motor truck, October 24.——Dr. John D. Hayward, St. Louis, is reported to have won the suit brought against him by Mrs. Mary Sparks for $5,000 damages for injuries claimed to have been received by the breaking of an operating table. ——The Surgeon-General of the Army has appointed Major Llewellyn Sale, St. Louis, chief of the medical service for the special study of cardiovascular diseases at Camp Wadsworth, Spartanburg, S. C., and Major Oliver H. Campbell, St. Louis, chief of the medical service of the same study at Camp McArthur, Waco, Texas.——Dr. Porter E. Williams, Bunceton, has been elected superintendent of State Hospital No. 2 at St. Joseph to succeed Dr. Eugene H. Bullock, Edina, appointed land reclamation commissioner.——The death of Dr. James H. Elliott, West Plains, councilor of the Twenty-Seventh District, created a vacancy in that office which the president, Dr. Robert E. Schlueter, has filled by appointing Dr. Henry C. Shuttee, West Plains.——Dr. William A. Clark, Jefferson City, has been appointed penitentiary physician to take the place of Dr. James C. Welch, Salem, resigned.

Conditions of Rural Schools.—Missouri's rural schools show many serious deficiencies in health conditions, according to the report of a sanitary survey of the rural schools of northeast Missouri, which appears in the November issue of the *Rural School Messenger*. The report, which was undertaken by the Department of Chemistry and Sanitation at the State Normal School, especially emphasizes the state's crying need of laws to provide health inspection in the schools. Attention is called to the fact that 98.2 per cent. of the schools investigated have no medical inspection whatever. Only 3.5 per cent. have dental inspection, and only 1.7 per cent. make any effort to examine children for adenoids, although 491 cases were reported to the investigating committee. Provision for testing the eyesight of children is made by only 19.4 per cent., and for testing pupils for defective hearing, by 10.7 per cent. The report cites 311 cases of malnutrition and 646 cases of defects in speech, and although 173 pupils are suffering from spinal curvature and sixty from chorea, scarcely a third of the schools have made any provision for the health and comfort of the defective child. Seating arrangements that are a perpetual invitation to spinal curvature and other physical defects are common, as the great majority of the children are required to sit at desks that cannot be adjusted to their individual needs. Other conditions that militate against the health of the pupils in a large percentage of the schools are lack of disinfection of schoolrooms, polluted water supply, defective toilet arrangements, lack of modern heating and ventilating systems, and improper disposal of sewage. The committee recommends the passage of new health laws, the installation of school physicians, and more liberal support of the various public health agencies of the state.

NEW YORK

Centennial of Medical Society.—At the centennial meeting of the Steuben County Medical Society, held at Bath, October 17, Dr. Francis S. Swain, Corning, was elected president; Dr. Floyd L. Spaulding, Cohocton, vice president, and Dr. D. R. Wakeman, Cornell, secretary-treasurer.

Central Association Meets.—At the forty-ninth annual meeting of the Medical Association of Central New York, held in Auburn, October 18, the following officers were elected: president, Dr. John J. Buettner; vice presidents, Drs. Owen E. Jones, Rochester, and Nelson G. Russell, Buffalo; secretary, Dr. Robert Burns, Syracuse (reelected), and treasurer, Dr. Thomas F. Laurie, Auburn (reelected).

New York City

Harvey Society Lecture.—The second lecture in the Harvey Society series, delivered, November 10, at 8:30, by Dr. Carl L. Alsberg of the United States Department of Agriculture, was on the subject "Current Food Problems."

White Mice Wanted.—As the European war has cut off the supply of white mice, Dr. William H. Park, director of the department of health laboratories, has advertised for all who have white mice for sale to communicate with the research laboratory at the foot of East Sixteenth Street.

Microscopic Society Exhibition.—The exhibition of the New York Microscopic Society was held, November 13, at the National Museum of American History. The exhibition was devoted in a great measure to the demonstration of the department of health of the practical use of the microscope in safeguarding the public health. Demonstrations were also made showing the use of the microscope in the arts, sciences and industries.

Dr. Baruch Honored.—A bronze tablet commemorating Dr. Simon Baruch's connection with the campaign for public baths in this city was unveiled at the Simon Baruch Public Baths, formerly the Rivington Street baths, October 29. The tablet was donated by Mrs. Belle Baruch through the Association for the Promotion of Hygiene and Public Baths. Borough President Marcus M. Marks made the address of acceptance in behalf of the city.

Federal Control of Habit-Forming Drugs.—Police Commissioner Wood has written a letter to the attorney-general strongly urging the United States government to enact additional legislation, placing the sale of the these drugs directly in the hands of the federal government with zone districts for the distribution, and severe penalties for the alteration of certificates calling for drugs. Commissioner Woods states that there are 2,000 arrests of drug users in New York every year.

Is Tuberculosis Adequately Reported?—A recent bulletin of the department of health publishes the statistics pertaining to tuberculosis during the second quarter of 1917, and compares them with the figures for the corresponding period of 1916. The comparison shows a slight decrease in the death rate from pulmonary tuberculosis, and for other forms of the disease as well. There is a very marked decline in the number of new cases reported during the second quarter of 1917. It is pointed out that this would be a source of great satisfaction were there not sufficient evidence to account for the belief that this decrease is accounted for to a certain extent by the failure of many physicians to report cases of tuberculosis under their care to the health [illegible]rtment.

seems that it is still necessary to call the attention of physicians to the sanitary regulation requiring that all cases of tuberculosis be reported to the health department and the failure to do so is a violation of the sanitary code, that is, a misdemeanor which subjects the offender to criminal prosecution.

OREGON

Society Changes Name.—At the meeting of the Klamath County Medical Society, held at Klamath Falls, it was decided to change the name of the organization to the Klamath and Lake County Medical Society.

Personal.—Dr. D. Everette Standard and Susie V. Standard have taken up the practice at Huntington, vacated by the call to military service of Samuel C. Standard.——Dr. William F. Amos, Portland, is ill with otitis media.——Dr. Esther Pohl Lovejoy, Portland, who went to France last August in Red Cross service, is on duty in Paris.——Dr. Edmond J. Labbe, Portland, has started for France.

New Medical Building.—Plans are being made for the construction, at an early date, of the first unit of the new medical school of the University of Oregon. The sum of $117,000 is available for this work. This building and the new county hospital will occupy a site of 20 acres on one of the hills above South Portland. Eventually other buildings are to be erected, comprising all the necessary facilities for a great medical school.

PENNSYLVANIA

State Hospital for Inebriates.—Lewis J. Sadler, Carlisle, was elected president of the commission appointed by the governor to select a site and erect a state hospital for the treatment of inebriates, October 30. The legislature has appropriated $200,000 for this work.

Welfare and Efficiency Conference.—The fifth annual Pennsylvania Welfare and Efficiency Conference will be held in the House of Representatives, Harrisburg, November 21 and 22. These conferences are held annually for the purpose of stimulating discussions on the problems of industries and labor, with special reference to the reduction of the enormous number of diseases and deaths, and the numerous industrial accidents.

Conference of Industrial Physicians and Surgeons.—The Department of Labor and Industry announces that the fifth conference of industrial physicians and surgeons will be held at the state capitol, Harrisburg, November 20. At the morning session the medical and surgical problems of the staff of the largest industries representative of Pennsylvania will be considered, and in the afternoon the question of industrial diseases will be taken up.

War's Levy on the Hospital Interns in Pennsylvania.—Dr. John M. Baldy sends the following data regarding the approved general hospitals in Pennsylvania, and the effect of the war on the interns of these hospitals. According to Dr. Baldy there are seventy-two general hospitals approved for internship in Pennsylvania, and in these there are normally required 418 interns. The total number of interns at present is 327, leaving ninety-one vacancies, or nearly 22 per cent.

Personal.—Dr. Henry W. Linebaugh, New Cumberland, suffered a cerebral hemorrhage, October 22.——Dr. Josiah J. Myers, Nescopeck, fractured several ribs and dislocated a shoulder by a fall at the Berwick Planing Mill.——Dr. John A. McKean, Washington, sustained serious injuries by falling from a ladder, October 18.——Dr. Wallace R. Hunter, Erie, has been reappointed a trustee of the State Hospital for the Insane, Warren.——Dr. Thomas Lambie, for seven years a medical missionary in the Sudan, was appointed a minister of the United Presbyterian Church at a special meeting in Pittsburgh, recently.

Philadelphia

To Conserve Baby Lives.—The Philadelphia Pediatric Society will hold a public meeting, November 13, at the College of Physicians, to devise means for preventing and arousing interest in the infant mortality percentage of the country. Last year 5,200 babies died in Philadelphia before they reached their first birthday.

Moynihan in Philadelphia.—Sir Berkeley Moynihan, senior consulting surgeon of the British Royal Army, who arrived in this country from England a short time ago, was entertained at a dinner at the Bellevue-Stratford Hotel, by the Philadelphia Medical Club, the College of Physicians, the Academy of Surgery and the Philadelphia County Medical Society, November 7.

Infantile Paralysis.—The health department reports that 143 victims of the infantile paralysis epidemic of 1916, under its care, have been cured. This result was accomplished through the combined efforts of the city department with hospitals, dispensaries and private physicians, supplemented by the financial assistance of the Emergency Aid. Of those restored to health, eighty-four patients were treated by private physicians and thirty-eight at dispensaries. Hospitals have discharged four as cured; two other cured were treated in their own homes.

Base Hospital School Will Be Opened Here.—A fully organized school to train the enlisted men of a base hospital has been instituted at the Second Regiment Armory. The new school will be under the direction of Major John S. Lambie, Fort Bliss, Texas, commanding officer, and Major William M. L. Coplin, director of Base Hospital No. 38. The various hospitals of the city have agreed to offer facilities for the training. They will take 153 men, and detail them to duty in wards, dispensaries, operating rooms and laboratories. The men are divided into various units on duty at the Jefferson, Pennsylvania, Samaritan, Jewish, Lankenau, Frankford, Polyclinic and St. Joseph's hospitals. Others are to be detailed to hotels for kitchen work and to familiarize themselves with practical cooking. The first lecture was given, October 27, by Dr. William W. Keen.

TENNESSEE

Memorial Hospital in China.—H. Alexander, Nashville, will erect a hospital at Ping Tu, China, in memory of his wife. The institution will be known as the Luella Roach Alexander Hospital for Women.

New Building Dedicated.—A new building, the Anderson Anatomical Hall, at the Meharry Medical College of Nashville, was dedicated, October 19. It is the gift of Dr. John W. Anderson, Dallas, Texas, who contributed $10,000 for its erection.

Personal.—Dr. Charles S. Briggs has been appointed chief surgeon of the Tennessee Central Railroad, to fill the vacancy caused by the resignation of Dr. Lucius E. Burch, Nashville, who has entered the military service.——Dr. Roy Wells, Clarksville, has been placed in charge of the United Fruit Company's Hospital, Panama.

UTAH

Physicians' Club Organized.—The Physicians and Surgeons Club of Cache Valley was organized at Logan, October 19, with an initial membership of seven. Dr. Heber K. Merrill, Logan, was elected president; Dr. Ralph O. Porter, vice president, and Dr. Ernest P. Oldham, secretary-treasurer, all of Logan.

Health Association Meeting.—At the meeting of the Utah Public Health Association in Salt Lake City, October 4, the following physicians were elected members of the board of directors: Robert W. Ashley, Salt Lake City; Theodore B. Beatty, Salt Lake City; G. H. Brimhall, Provo; Clarence M. Clark, American Fork; R. Garn Clark, Panguitch; Ephraim G. Gowans, Salt Lake City; Robert S. Joyce, Ogden; Howard P. Kirtley, Salt Lake City; Horace G. Merrill, Provo; George W. Middleton, Green River; Edwin M. Nehner, Castlegate; E. G. Peterson, Logan; Joseph A. Phipps, Tooele; Charles C. R. Pugmire, Morgan; Matthew S. Reay, Randolph; Ezra C. Rich, Ogden; J. E. Talmage; J. A. Widtsoe, Salt Lake City, and C. A. Broadas, Delta.

WISCONSIN

Gifts to Medical School.—The medical library of the late John L. C. Cronyn, Buffalo, consisting of 1,000 volumes, has been donated to the library of Marquette University School of Medicine, Milwaukee, by the Cronyn family.

Anthrax in Milwaukee.—The first case of anthrax in human beings to be reported in Milwaukee was recently isolated by Health Commissioner Lewis J. Daniels in South View Hospital. The patient is a hide stripper in a tannery.

Women Elect Officers.—At the annual meeting of the Wisconsin Medical Women's Association, October 2, Dr. Irene Stemper, Oconomowoc, was elected president; Dr. Ada B. Chambler, Milwaukee, vice president, and Dr. Belle P. Nair, Winnebago, secretary-treasurer.

Sanatorium Almost Ready.—The first private charitable tuberculosis sanatorium in the state, founded by the Madison Anti-Tuberculosis Society, will be ready to receive patients by November 15. The sanatorium is located on a wooded slope overlooking Lake Waubesa, and will accommodate at present thirty patients. The buildings were donated by Dr. Charles H. Vilas, Madison. Dr. Louis R. Head, Madison, is president of the association.

Chiropractic Treatment Not Acceptable.—The Wisconsin commission having in charge the enforcement of the workmen's compensation law has held that chiropractic treatment does not constitute "medical and surgical treatment." Sylvester Jones, Janesville, was injured last February while in the employ of Sanford Severhill, both parties being under the compensation. Severhill held compensation insurance with the Employees' Mutual Liability Insurance Company. For a time Jones was treated by a physician, but later of his own volition changed to a chiropractor. The decision of the commission is that Jones is not entitled to reimbursement for the chiropractor's charges under the terms of the compensation law, which requires the employer to furnish "medical and surgical treatment."

CANADA

Deserved Promotion.—Col. Henry R. Casgrain, Windsor, who recruited Canadian Station Hospital No. 3, has been promoted to senior officer of Hospital No. 8, which is now in France. Colonel Casgrain, who had been invalided home, has left for France to assume his new duties.

Medical Board at Work.—The traveling medical board, consisting of Dr. Clarence H. Brown, Ottawa, and Dr. Stock, Toronto, and Dr. James H. McGarry, Niagara Falls, to examine all men eligible for the first draft under the military service act, commenced work at Niagara Falls, October 12, and will continue until all widowers and married men without children have been examined.

GENERAL

Soo Line Physicians Elect Officers.—At the annual meeting of the Minneapolis, St. Paul and Sault Ste. Marie Railway Surgical Association, held in Chicago, October 22 and 23, under the presidency of Dr. John M. Dodson, Chicago, the following officers were elected: president, Dr. George M. Steele, Oshkosh, Wis.; vice president, Dr. David C. Pierpont, Ironwood, Mich., and secretary-treasurer, Dr. John H. Rishmiller, Minneapolis (reelected). Minneapolis was selected as the next place of meeting.

Warning.—A warning has been received from Milwaukee regarding a young man who calls himself Joseph C. Grimble, who gives a history of military experience in France and Belgium, where he says he was seriously wounded and was under the care of Dr. Alexis Carrel. He has scars on the hip and scrotum, has some shortening of the right leg, is about 5 feet, 5 inches in height, 127 pounds in weight, and fair complexion. It is reported that he is an impostor, and is attempting to obtain money under false pretenses.

Formulation of Milk Ordinance.—To assist communities in making their milk supply safe, the United States Department of Agriculture has issued a "Guide for Formulating a Milk Ordinance." This document, *Department Bulletin 585*, suggests a form of ordinance designed to protect the community against fraud and disease, and to insure cleanliness in the production and handling of milk. Health officers and physicians interested in improving milk supplies may obtain copies of this bulletin free, on application to the department.

Campaign of Washington State Medical Association Against Venereal Diseases.—The Committee on Venereal Prophylaxis of the Washington State Medical Association is furnishing to the soldiers and sailors of that state a printed slip on the subject of venereal diseases. Prophylactic stations have been established at the Municipal Dock, Tacoma, and in the Joshua Green Building, Seattle. These stations are manned by an army personnel. The committee is assisted by furnished rooms and equipment, and the circulars which the military authorities aid in distributing.

Personal.—Dr. Augustine M. Fernandez-Yberra, for the last eight years a practitioner of Havana, sailed for Europe, October 29, as traveling correspondent for England, Switzerland, Italy and Spain, for the Havana journal *El Dia*.——Lieut. Percy G. Hamlin, M. R. C., U. S. Army, Richmond, Va., who was on duty with the British troops on the western front, was wounded, October 5.——Lieut. Archibald F. Graham, M. R. C., U. S. Army, Paterson, N. J., on duty with the British forces, has been seriously wounded in the thighs.——Lieut. Clement A. Fogerty, M. R. C., U. S. Army, Philadelphia, who went to England early in August, has been made assistant surgeon in the Southwark Hospital, London.

PARIS LETTER

Paris, Oct. 11, 1917.

The War

THE CABINET OFFICIAL IN CHARGE OF THE ARMY MEDICAL DEPARTMENT

A decree recently appeared in the *Journal Officiel* setting forth the powers of the undersecretary of state for the Service de santé militaire. They are as follows: Article 1. The undersecretary of state has charge of the Service de santé, and directs the activities of this service by and for the state war department. Propositions of every nature concerning the personnel of this service are discussed and prepared in concrete form by him before they are presented to the minister for his consideration. Article 2. The undersecretary of state has, within the limits of his powers, the right to use the ministerial signature. He will likewise correspond directly with the commander-in-chief and the regional commander-in-chief.

Donations from the American Red Cross to the City of Paris

The president of the municipal council of Paris received from Mr Beatty, director-general of the American Red Cross, 266,667 francs ($53,333.40) to be divided, with the cooperation of the prefect of the department of the Seine, among the families of the Parisian officers and soldiers who have seen the longest service. The president of the General Council of the department of the Seine received 133,333 francs ($26,666.60) to be distributed under the same conditions to the families residing within the confines of that district outside of Paris.

Donations from the American Automobile Club

The American Automobile Club has sent to the Automobile Club of France 23,140 francs ($4,628) to be given to the Association of French Women (one of the three societies of the Red Cross) for the purpose of purchasing automobile ambulances.

Death of Dr. Alphonse Boissard

We are advised of the death of Dr. Alphonse Boissard, aged 65, honorary obstetrician to the hospitals of Paris. In 1883, he presented to the Faculté de médecine de Paris a thesis which was a classic on the pelvis and perineum from the obstetric point of view. He was chief of the clinic of Pinard, and in 1891 he received the title of accoucheur of the hospitals of Paris. With Budin he held the chair of adjunct professor of the maternity during 1896 and 1897, and in 1898 he was made accoucheur. Among the subjects that occupied his attention must be mentioned, first, provoked or produced abortion. He also gave much thought to evacuation of the uterus in cases of retained dead fetus, and made interesting researches on the bladder troubles of the parturient. He was president of the Obstetrical Society of Paris, of which he was one of the founders.

LONDON LETTER

London, Oct. 16, 1917.

The War

THE WAR MUSEUM AT THE COLLEGE OF SURGEONS

At the Royal College of Surgeons, Sir Alfred Keogh, director-general of the army medical service, opened an exhibition of specimens of military injuries. This has been arranged by the college staff under the supervision of Arthur Keith, and is temporarily housed in the college museum. At the same time Sir George Makins, president of the college, conferred the diploma of honorary fellowship on Sir Alfred Keogh in the presence of a large gathering of the heads of the army and navy medical services and representatives of the medical services of France, Serbia, the United States, and our overseas dominions. The president paid a high tribute to Sir Alfred Keogh's brilliant career and great administrative ability. In replying, Sir Alfred said that John Hunter would have gloried to see that day, for the exhibition was indeed the vindication of his life work. It included specimens sent in by the medical services of the armies of the oversea dominions as well as by the Royal Army Medical Corps, and it was hoped that eventually these would go to the dominions to form the nuclei of pathologic museums there. It was also hoped that out of the superabundance of materials that this war would supply, local museums would be created in some of the military hospitals.

As early as the third month of the war, an army medical committee was constituted to compile the medical history

Thomas Scilles Kennedy, M.D., New Orleans; Tulane University, New Orleans, 1869; professor of pediatrics in the New Orleans Polyclinic; for fifteen years in charge of the Children's Clinic of the Charity Hospital, New Orleans; a Confederate veteran; died at his home about October 20.

James Benjamin Livingston, M.D., West Middlesex, Pa.; Western Reserve University, Cleveland, 1866; aged 87; formerly a Fellow of the American Medical Association; a member of the Medical Society of the State of Pennsylvania; died at his home, October 18, from senile debility.

Thomas Joseph Henry McCormick, M.D., Boston, Mass.; Harvard Medical School, 1900; aged 40; formerly a Fellow of the American Medical Association; a member of the Massachusetts Medical Society; died at his home in Roxbury, Boston, October 10, from heart disease.

Joseph J. Knapp, M.D., Youngsville, Pa.; College of Physicians and Surgeons, Baltimore, 1891; aged 63; a member of the Medical Society of the State of Pennsylvania; a director and vice president of the First National Bank of Youngsville; died at his home, October 19.

John Quincy Adams, M.D., Amesbury, Mass.; Bellevue Hospital Medical College, 1872; aged 67; a member of the Massachusetts Medical Society; a prominent socialist and once candidate for governor on that ticket; died at his home, October 19.

John L. Schoolcraft, M.D., Schenectady, N. Y.; Albany, N. Y., Medical College, 1869; aged 64; a Fellow of the American Medical Association; health officer of Schenectady in 1914-1915; died at his home, October 23, from cerebral hemorrhage.

Owen W. Grubbs, M.D., Harrison, Ohio; Medical College of Ohio, Cincinnati, 1888; aged 57; died at his home, October 23, from the effects of a gunshot wound of the heart, believed to have been accidentally self-inflicted while cleaning his shotgun.

Howard Chew Garrison, M.D., Kansas, N. J.; Hahnemann Medical College, Philadelphia, 1894; aged 53; a member of the staff of the West Jersey Homeopathic Hospital, Camden; died in a hotel in Atlantic City, October 23, from nephritis.

John H. Wood, M.D., Champaign, Ill.; College of Physicians and Surgeons, Keokuk, Iowa, 1878; aged 74; a veteran of the Civil War; formerly mayor of Deland, Ill.; died at his home in Champaign, October 18, from malignant disease.

George N. Carnachan, M.D., Bruce, Wis.; Louisville, Ky., Medical College, 1878; aged 60; a Fellow of the American Medical Association; died in the Sacred Heart Hospital, Eau Claire, Wis., October 25, after a surgical operation.

Pitt Harold Jones, M.D., Springfield, Maine; New York University, New York, 1884; aged 55; for two terms a member of the house of representatives of Maine; town treasurer of Springfield; died in his automobile, October 14.

Harry Valentine Sanns, M.D., Le Sage, W. Va.; Medical College of Ohio, Cincinnati, 1880; aged 57; a member of the West Virginia State Medical Association; died in Rochester, Minn., August 16, from carcinoma of the colon.

David McIntyre, M.D., Boston; New York University, New York, 1886; aged 59; a Fellow of the American Medical Association; a well-known obstetrician of South Boston; died at his home, September 2, from diabetes.

Edwin Dorset Newton, M.D., Atlanta, Ga.; Jefferson Medical College, 1869; aged 82; surgeon in the Confederate service during the Civil War; died at the home of his sister in Athens, Ga., October 19, from pneumonia.

Elbridge A. Shay, M.D., St. Louis, Mo.; Cleveland University of Medicine and Surgery, 1883; aged 68; professor of anesthesia in the St. Louis College of Physicians and Surgeons; died at his home, October 20.

Mary Darrach, M.D., New York; New York Medical College and Hospital for Women, 1904; founder of the Darrach Home for Crippled Children, New York; died in Atlantic City, October 18, from pneumonia.

William Lewis Tallman, M.D., Chicago; Bellevue Hospital Medical College, 1881; aged 58; died at his home, October 27, from cerebral hemorrhage.

G. H. Clemens Richard, M.D., Cincinnati; Eclectic Medical Institute, Cincinnati, 1856; aged 89; died at his home, October 13.

John Carder Champlin, M.D., Block Island, R. I.; Boston University, 1885; aged 57; died at his home, in August, from nephritis.

The Propaganda for Reform

In This Department Appear Reports of the Council on Pharmacy and Chemistry and of the Association Laboratory, Together with Other Matter Tending to Aid Intelligent Prescribing and to Oppose Medical Fraud on the Public and on the Profession

"PATENT MEDICINES" IN CANADA AND THE UNITED STATES

A Comparison of Therapeutic Claims Made in the Two Countries

A little more than five years ago an article was published in this department comparing the labels on certain "patent medicines" that were sold, respectively, in the British Isles and in the United States. It was shown that the federal Food and Drugs Act in this country had increased alike the protection of the purchaser and the veracity of the seller. The present article aims to draw a similar parallel between the claims made for certain "patent medicines" in the United States and in the Dominion of Canada.

The national law in the United States governing interstate commerce in "patent medicine" guards the public by means of two prohibitions that may be briefly expressed in their essentials as follows: It prohibits "false or misleading" statements regarding the composition or source of origin of any drug product; it prohibits, also, "false and fraudulent" claims for therapeutic effects. The law governing the sale of "patent medicines" in Canada prescribes certain regulations for labeling, and specifically prohibits the use of cocain in any "patent medicine." It does not, however, offer any protection to the Canadian public against false, misleading or fraudulent claims that may be made for products of this class.

DODD'S KIDNEY PILLS IN CANADA

A POSITIVE CURE FOR ALL KIDNEY DISEASES.

CURES BACKACHE	CURES-RHEUMATISM	PURIFIES THE BLOOD
HEADACHE	BRIGHT'S DISEASE	CLEANSES THE SYSTEM
INDIGESTION	DIABETES	CURES-FEMALE WEAKNESS

DODD'S KIDNEY PILLS IN THE UNITED STATES

A TREATMENT FOR KIDNEY DISEASES.

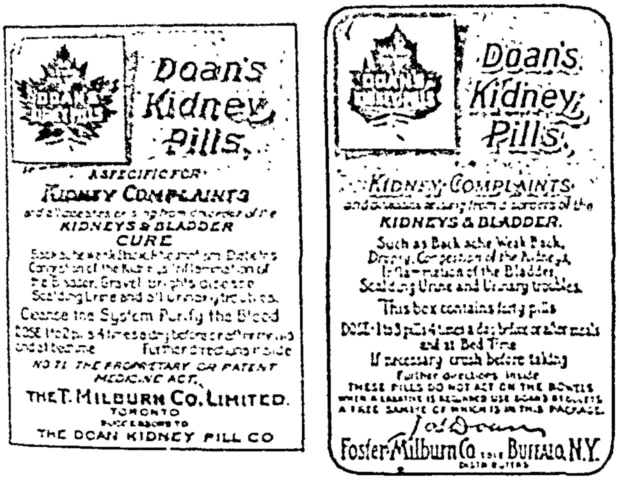
FOR-BACKACHE	FOR-RHEUMATISM	FOR-FEMALE WEAKNESS
HEADACHE	URINARY AND	PURIFYING THE BLOOD
INDIGESTION	BLADDER TROUBLE	CLEANSING THE SYSTEM

What follows is not to be construed in any sense as a criticism of the Canadian law; the object of the comparisons made is to show that so far as curative claims for "patent medicines" are concerned, Canada is in the same position that the United States was before the passage of the federal Food and Drugs Act, June 30, 1906. Manufacturers of "patent medicines" who wish to sell their preparations in Canada are under no legal restrictions as to the claims they may make for them. In the United States therapeutic claims—made on the trade package—must be kept within certain limits. If false and fraudulent claims are made the manufacturer lays himself open to prosecution under the federal law. If, then, we find that certain claims are made for a "patent medicine" sold in Canada that are not made for the same product sold in the United States, we are justified in inferring that such claims are in the prohibited list, that is, they are false, misleading or fraudulent.

Within the last few weeks we have had purchased on the open market in Canada certain "patent medicines" that are sold also in the United States. We purpose comparing the claims made on the Canadian trade packages with the claims made for the same products sold south of the international boundary.

DODD'S KIDNEY PILLS

"Dodd's Kidney Pills" were analyzed a few years ago by the chemists of the British Medical Association, who reported that the principal ingredient was potassium nitrate. Other constituents found were baking soda, soap, hard paraffin, wheat flour, powdered turmeric and minute quantities of resins and plant extractives. Practically the same findings were reported by the state chemists of North Dakota in their 1915 *Bulletin*. These pills are sold in Canada under claims which, if made in the United States, would undoubtedly subject the manufacturers to prosecution on the charge of making false and fraudulent statements regarding the therapeutic value of their product. Compare:


Doan's Kidney Pills,
A Specific for
Kidney Complaints
and all diseases arising from disorder of the
Kidneys & Bladder
Cure
Cleanse the System Purify the Blood
No. 71 The Proprietary or Patent Medicine Act.
The T. Milburn Co. Limited.
Toronto
The Doan Kidney Pill Co
Doan's Kidney Pills,
Kidney Complaints
Kidneys & Bladder.
Such as Back ache Weak Back, Dropsy, Congestion of the Kidneys, Inflammation of the Bladder, Scalding Urine and Urinary troubles.
This box contains forty pills
and at Bed Time
If necessary crush before taking
Further directions inside
These pills do not act on the bowels
Jas Doan
Foster-Milburn Co. Buffalo N.Y.

CANADA UNITED STATES

Photographic reproduction (reduced) of the labels of "Doan's Kidney Pills" as sold in Canada and the United States, respectively. It is worthy of note that while in Canada (where the law does not prohibit lying on the label) Doan's Kidney Pills are sold as a "cure" for Bright's disease and diabetes, in selling their pills in the United States the manufacturers specifically state that the pills "are not recommended for Bright's disease or diabetes."

CANADA	UNITED STATES
"A Positive Cure for all Kidney Diseases—Cures—Backache, Headache, Indigestion. Cures—Rheumatism, Bright's Disease, Diabetes. Purifies the Blood Cleanses the System. Cures — Female Weakness."	"A Treatment for Kidney Diseases — For — Backache, Headache, Indigestion. For—Rheumatism, Urinary and Bladder Trouble. For—Female Weakness, Purifying the Blood, Cleansing the System."
"*Bright's Disease*— . . . Dodd's Kidney Pills is the only remedy that has cured Bright's disease."	"*Bright's Disease*—" (Statement omitted — no claim made that Dodd's Pills are of any value in this disease).
"Diabetes— . . . Dodd's Kidney Pills will cure this disease."	(No reference whatever to diabetes.)
". . . Dodd's Kidney Pills will cure any form of heart disease."	(No reference whatever to heart disease.)
". . . are the only cure for kidney disease."	(No such statement anywhere.)
". . . the best kidney remedy obtainable."	(No such statement anywhere.)

Every one must admit that the claims made for the therapeutic action of Dodd's Kidney Pills in the Canadian package are stronger and better "business pullers" and "selling copy" than the much more conservative claims made in this country. Now, if Dodd's Kidney Pills are "a Positive Cure for all Kidney Diseases"; if they really are "the only remedy that has cured Bright's disease"; if they will "cure diabetes" and "cure any form of heart disease," and are, in fact, "the only cure for kidney disease," why does not the manufacturer of these pills so state on the trade packages sold in the United States? There is no law against telling the truth.

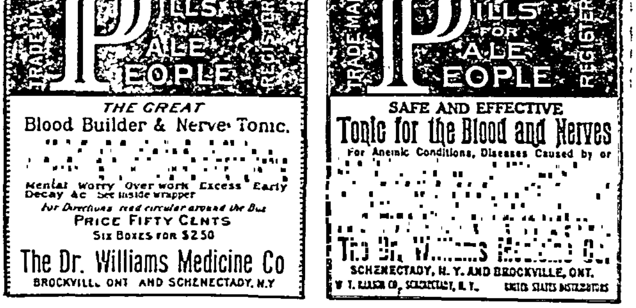
DOAN'S KIDNEY PILLS

"Doan's Kidney Pills" also have been analyzed by the chemists of the British Medical Association, who reported finding oil of juniper, hemlock pitch and powdered fenugreek, as well as potassium nitrate—the latter, in spite of the claim made in the British Isles (and also in Canada), that these pills were "purely vegetable." The state chemists of Connecticut also have analyzed these pills and reported that their active ingredients appear to be potassium nitrate, pitch and possibly a trace of oil of juniper and other unidentified organic drugs. In Canada Doan's Pills are "a specific for kidney complaints," but in the United States the manufacturer more conservatively—or cautiously—mentions merely that they are "for kidney complaints." Again comparing:

CANADA	UNITED STATES
"Doan's Kidney Pills, A Specific for Kidney Complaints and all diseases arising from disorder of the Kidneys & Bladder Cure Backache, Weak Back, Rheumatism, Diabetes, Congestion of the Kidneys, Inflammation of the Bladder, Gravel, Bright's disease, Scalding Urine and all Urinary troubles, Cleanse the System, Purify the Blood."	"*Doan's Kidney Pills for Kidney* Complaints and diseases arising from disorders of the Kidneys & Bladder, such as Back-ache, Weak Back, Dropsy, Congestion of the Kidneys, Inflammation of the Bladder, Scalding Urine and Urinary troubles."
"These Pills are composed of rare and valuable medicinal agents. . ."	(No such claim made.)
". . . will absolutely cure backache, all forms of Kidney Disease, Diabetes, Bright's Disease, etc."	". . . are not recommended for Bright's disease or diabetes."
". . . a purely vegetable medicine. . ."	(No such claim made.)

Every physician and many an intelligent layman knows that neither Doan's Kidney Pills nor any other drug "will absolutely cure . . . all forms of kidney disease, diabetes, Bright's disease, etc." This statement is a preposterous falsehood on its face, but the manufacturers of Doan's Kidney Pills have made it where there is no legal restriction on lying, although in the United States they emphasize specifically that their pills "are not recommended for Bright's disease or diabetes" and add: "Both these are serious disorders and the patient should be under the supervision and instruction of a competent physician."

If Doan's Kidney Pills really contain "rare and valuable medicinal agents," as is claimed in the Canadian trade package, there is no law in the United States that would prohibit the manufacturer from saying so. There is, however, a law that specifically prohibits false or misleading statements regarding the composition of drug products. In view of the fact that the claim of "rare and valuable medicinal agents" is omitted from the trade package in the United States, the inference is fairly obvious.


Dr Williams
Pink Pills for Pale People
Trade Mark
Registered
The Great
Blood Builder & Nerve Tonic.
Mental Worry Over work Excess Early Decay &c See inside wrapper
For Directions read circular around the Box
Price Fifty Cents
Six Boxes for $2.50
The Dr. Williams Medicine Co
Brockville Ont and Schenectady, N.Y
Safe and Effective
Tonic for the Blood and Nerves
For Anemic Conditions, Diseases Caused by or
Schenectady, N. Y. and Brockville, Ont.

CANADA UNITED STATES

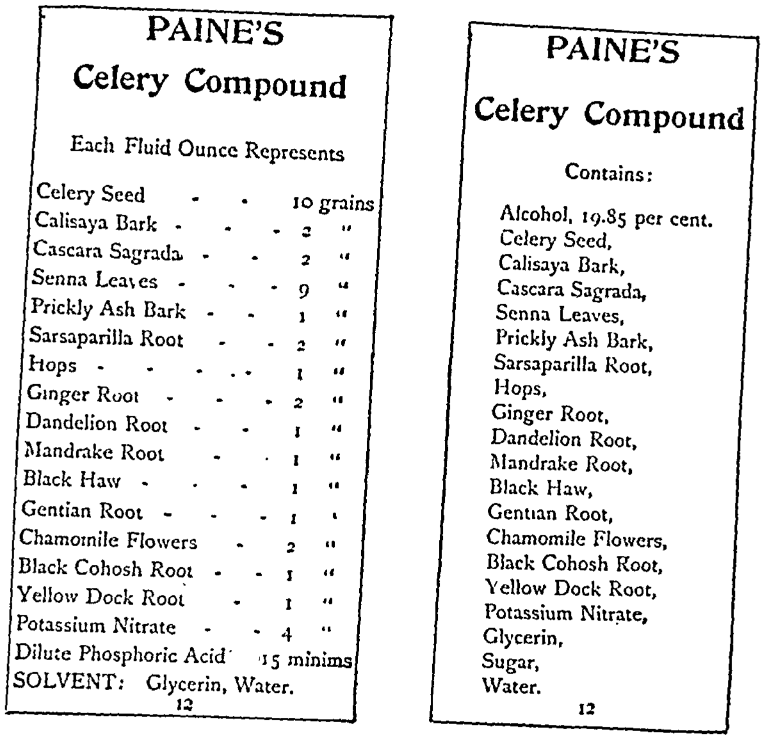
Photographic reproduction (reduced) of the labels of "Williams' Pink Pills" as sold in Canada and the United States, respectively. Notice that the Canadian public is told that these pills will "cure" all nervous diseases, locomotor ataxia, paralysis, female weaknesses, etc. The same pills when sold in the United States are not invested with such marvelous powers.

WILLIAMS' PINK PILLS FOR PALE PEOPLE

"Dr. Williams' Pink Pills for Pale People" are a much over-advertised proprietary modification of the common Blaud's pill. The manufacturers have been found guilty in the United States courts of making false and fraudulent claims for their product in reckless and wanton disregard of their truth or falsity for the purpose of defrauding purchasers. Let us compare the claims made today for Pink Pills in the United States with those made for the same product in Canada:

CANADA	UNITED STATES
"Cures Anemia, all Nervous Diseases, Locomotor Ataxia, Paralysis, Rheumatism, Sciatica, Headache, all Female Weaknesses, Suppressions of the Periods, Pale and Sallow Complexions, all Diseases arising from Mental Worry, Over-Work, Excess, Early Decay, Etc."	"For Anemic Conditions, Diseases Caused by or Dependent upon Thin, Impoverished Blood and for Nervous Disorders resulting from Mal-Nutrition. Useful wherever a nervine or digestive tonic is required.
"This wonderful remedy is offered to the public . . ."	"These pills are offered to the public. . . ."
"Dr. Williams' Pink Pills also invigorate the Blood. . . ."	"Dr. Williams' Pink Pills are designed to invigorate the Blood . . ."
"Suppression of the Menses. .	(Omitted.)
"Locomotor Ataxia . . ."	(Omitted.)

It is worthy of note that while the claims now made in the United States, as quoted above, are more conservative than those on which the government charged the company with fraud, yet the claims on which the company was found guilty of fraud were not nearly so positive and blatant as those quoted above as being made today for the Canadian product.



PAINE'S

Celery Compound

Each Fluid Ounce Represents

Celery Seed	10 grains
Calisaya Bark	2 "
Cascara Sagrada	2 "
Senna Leaves	9 "
Prickly Ash Bark	1 "
Sarsaparilla Root	2 "
Hops	1 "
Ginger Root	2 "
Dandelion Root	1 "
Mandrake Root	1 "
Black Haw	1 "
Gentian Root	1 "
Chamomile Flowers	2 "
Black Cohosh Root	1 "
Yellow Dock Root	1 "
Potassium Nitrate	4 "
Dilute Phosphoric Acid	15 minims

SOLVENT: Glycerin, Water.

12

CANADA

PAINE'S

Celery Compound

Contains:

Alcohol, 19.85 per cent.
Celery Seed,
Calisaya Bark,
Cascara Sagrada,
Senna Leaves,
Prickly Ash Bark,
Sarsaparilla Root,
Hops,
Ginger Root,
Dandelion Root,
Mandrake Root,
Black Haw,
Gentian Root,
Chamomile Flowers,
Black Cohosh Root,
Yellow Dock Root,
Potassium Nitrate,
Glycerin,
Sugar,
Water.

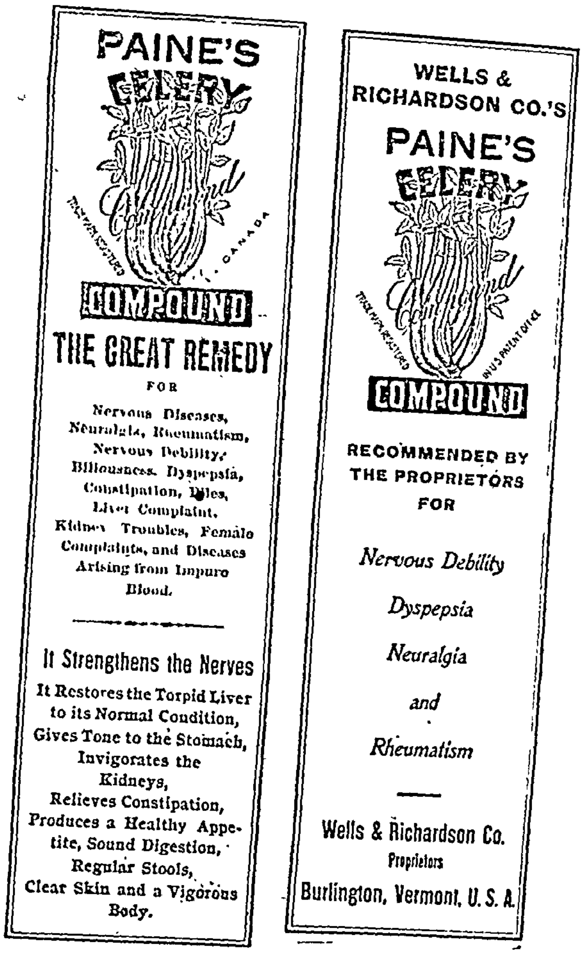
12

UNITED STATES

Photographic reproduction (reduced) of page 12 from the booklets accompanying the bottles of Paine's Celery Compound as sold, respectively, in Canada and the United States. It will be seen that the only ingredient whose quantity is given the public in the United States is the alcohol—which the law demands. In Canada, where the law does not demand it, the presence of alcohol is not mentioned, although the alleged quantities of the other ingredients are given. Canadian officials state that an analysis of Paine's Celery Compound on sale in Canada disclosed the presence of over 16 per cent. alcohol. The Canadian public would be justified in assuming from the alleged formula published that the stuff contained no alcohol but that the solvents used were glycerin and water.

PAINE'S CELERY COMPOUND

"Paine's Celery Compound" belongs to the "bracer" type of nostrums; that is, it is a preparation whose most potent and active drug is alcohol. Some years ago it used to be one of the most widely advertised of "patent medicines." The concern, apparently, had testimonials galore, many of them from individuals whose ability along certain special lines was as great as their ignorance of the nature, cause and treatment of disease was abysmal. According to one of the old advertising booklets sent out by manufacturers of Paine's Celery Compound, Sarah Bernhardt was "convinced that it is the most powerful nerve strengthener that can be found," while "Edward L. Preetorius, Manager of the *Westliche Post*" considered this medicated booze "the only remedy that will restore the nerves which have been shattered by overwork, worry or business cares." The same booklet declares that "Rev. Zephaniah Meek, D.D., Editor of the *Central Methodist*," had used several bottles "with immediate effect as well as permanent benefit." Especially significant of the way in which the public was fooled in those days before the presence and amount of alcohol had to be declared on the labels was the alleged testimonial of "Francis Murphy, Founder of the Blue Ribbon Movement," who endorsed Paine's Celery Compound as "a splendid remedy."



PAINE'S
CELERY
COMPOUND
THE GREAT REMEDY
FOR
Nervous Diseases, Neuralgia, Rheumatism, Nervous Debility, Biliousness, Dyspepsia, Constipation, Piles, Liver Complaint, Kidney Troubles, Female Complaints, and Diseases Arising from Impure Blood.

It Strengthens the Nerves
It Restores the Torpid Liver to its Normal Condition, Gives Tone to the Stomach, Invigorates the Kidneys, Relieves Constipation, Produces a Healthy Appetite, Sound Digestion, Regular Stools, Clear Skin and a Vigorous Body.

CANADA

WELLS & RICHARDSON CO.'S
PAINE'S
CELERY
COMPOUND
RECOMMENDED BY THE PROPRIETORS FOR
Nervous Debility
Dyspepsia
Neuralgia
and
Rheumatism
Wells & Richardson Co.
Proprietors
Burlington, Vermont, U. S. A.

UNITED STATES

Photographic reproduction (reduced) of the labels of "Paine's Celery Compound" as sold in Canada and the United States, respectively. Note that the claims made on the Canadian label that this nostrum "strengthens," "restores," "invigorates" and "relieves" are absent from the label used in the United States.

These are but a few of the endorsements of Paine's Celery Compound published in the good old days. The claims made today on the trade package as it is sold in the United States, are relatively conservative and innocuous. A booklet that comes around the bottle gives a list of drugs that are said to enter into the composition of this nostrum. No quantities, however, are vouchsafed (in the United States) except that of the one ingredient which the law requires to be made public, namely, alcohol, of which it has 19.85 per cent. The list gives fifteen vegetable drugs and, in addition, potassium nitrate, glycerin and sugar. As the state chemists of Connecticut, who have analyzed the stuff, point out, the list of these fifteen vegetable drugs "loses much of its impressiveness when it is seen that the total amount of vegetable extractives is less than 1.5 per cent." Much more impressive is the nearly 20 per cent. alcohol! The booklet accompanying the Canadian trade package also contains a list of the alleged ingredients. This list differs from that found in the packages sold in the United States in that it contains a quantitative statement of the various drugs listed! It tells how many grains of each of the fifteen vegetable drugs are represented in each fluidounce of Paine's Celery Compound; also it tells the amount of potassium nitrate. But one thing it does *not* tell—the amount of alcohol! In fact, it does not even admit that the Canadian product contains any alcohol! On the other hand, it emphasizes the alleged fact that the "solvent" in the Canadian product is glycerin and water; also it mentions that in each fluidounce there are 15 minims of dilute phosphoric acid, a drug whose presence is not mentioned in the product sold in the United States. As Paine's Celery Compound without alcohol seemed almost as much of an anomaly as *Hamlet* with Hamlet left out, we wrote to the Inland Revenue Department of Canada calling attention to these facts. The Inland Revenue Department replied that Paine's Celery Compound, as sold in Canada (giving no information regarding the amount or even the presence of alcohol), had been examined and, as a result, alcohol (over 16 per cent. by volume) *was* found, while phosphoric acid could not be detected!

The claims in the trade package of Paine's Celery Compound as sold, respectively, in Canada and the United States varied thus:

CANADA	UNITED STATES
Solvent: "Glycerin, Water."	Alcohol, 19.85 per cent.
"A True Nerve Tonic, an Active Alterative, a Reliable Laxative and Diuretic. It Restores Strength, Renews Vitality, Purifies the Blood, Regulates the Kidneys, Liver and Bowels."	(Omitted entire.)
"A Reliable Medicine for general nervous debility and diseases arising from a debilitated nervous system. A powerful Alterative and Diuretic; a Valuable Remedy for Dyspepsia, Biliousness, Constipation, Piles, Liver Complaint, Neuralgia, Rheumatism, Fever and Ague, and Kidney Trouble; also Female Complaints, and diseases arising from an impure state of the Blood. It acts at the same time as a tonic, reviving the energies and spirits, making it one of the best medicines in existence for aged people."	(Omitted entire.)
"The Great Remedy for Nervous Diseases, Neuralgia, Rheumatism, Nervous Debility, Biliousness, Dyspepsia, Constipation, Piles, Liver Complaint, Kidney Troubles, Female Complaints, and Diseases Arising from Impure Blood."	"Recommended by the Proprietors for Nervous Debility, Dyspepsia, Neuralgia and Rheumatism."

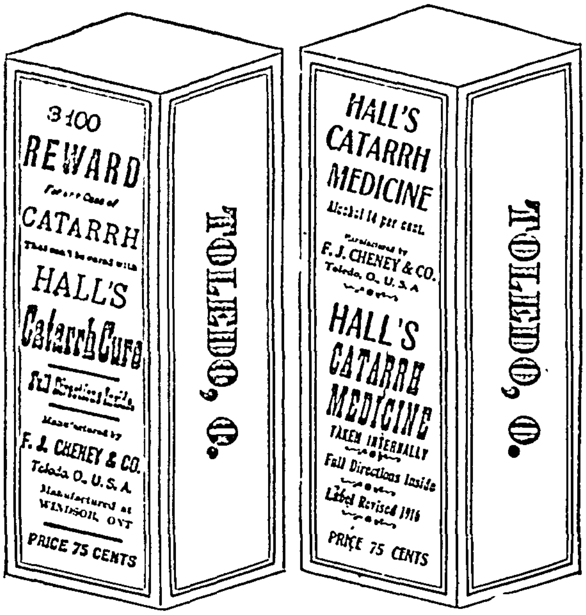
From a comparison of the old advertising in our files, it seems that the people of Canada are being served with claims for Paine's Celery Compound of the vintage of '98.

HALL'S CATARRH MEDICINE

"Hall's Catarrh Cure" (Canada), or "Hall's Catarrh Medicine" (United States), was found, by government chemists, to contain more than 13 per cent. alcohol, over 10 per cent. potassium iodid, 3 per cent. of sugar and a small amount of some bitter extract, probably gentian, with small quantities of cardamom and caraway and water. This nostrum has for years used an obviously false name ("Hall's Catarrh Cure"). Finally the state of Nebraska declared the stuff misbranded because of the use of the word "cure." The company took an appeal, but before the matter reached the Appellate Court apparently changed its mind and asked for a dismissal of the appeal, expressing at the same time its purpose of changing the name of its preparation to "Hall's Catarrh *Medicine*." The difference in the claims on the trade packages in Canada and the United States may briefly be shown:

CANADA	UNITED STATES
"Hall's Catarrh Cure."	"Hall's Catarrh Medicine."
(No alcohol declared.)	"Alcohol 14 per cent. 3 ounces."
"$100 Reward For any Case of Catarrh That Can't be cured with Hall's Catarrh Cure."	(No reward offered.)

The "offer" of this concern, to pay $100 for any case of "catarrh" that the nostrum fails to cure, has been made for many years. One case has been recorded of an individual who, after taking twenty-six bottles of the stuff, wrote to the nostrum company telling them that instead of being benefited he felt worse and asked them either to refund his money or to pay him the hundred dollars in accordance with their "offer." He, of course, got neither; the company said that he had not taken enough to give the medicine a fair chance! The exploiters still make this "offer" in their newspaper advertising in the United States, but have eliminated it from the trade package. It is significant that the federal law does not control claims made elsewhere than on the trade package. In Canada, as the quotations above show, the hundred dollar "offer" still appears on the trade package.



CANADA — UNITED STATES

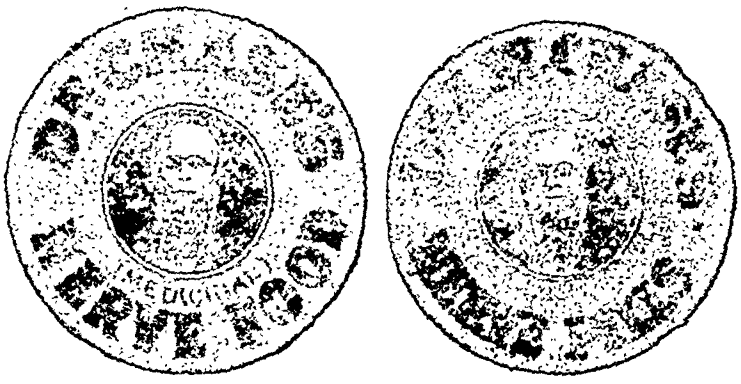
Photographic reproduction (reduced) of the labels of "Hall's Catarrh Medicine" as sold in Canada and the United States, respectively. Comparison of the labels shows that the presence and amount of alcohol is admitted where the law demands it (in the United States), but no mention is made of it in Canada. While the stuff is called a "cure" in Canada, where there is no penalty for false and fraudulent therapeutic claims, it is a "medicine" in the United States. In the United States also the "$100 Reward" does not appear on the trade package.

HOOD'S SARSAPARILLA

Like most of the so-called sarsaparillas, Hood's nostrum is an alcoholic solution of vegetable extractives and potassium iodid. The difference in the claims made in Canada and the United States are shown:

CANADA	UNITED STATES
"Contains 18 per cent. alcohol. The smallest quantity that will extract and preserve all the remedial properties of the ingredients."	"Contains 16½ per cent. alcohol. Used only as a solvent and preservative. This is a concentrated medicine, to be taken only in small doses, according to the directions enclosed."
"The Great Blood Purifier and Tonic, for Eradicating Scrofula, Scrofulous Sores and all Scrofulous Diseases, and for Purifying, Enriching and Vitalizing the Blood and Restoring and Renovating the whole system."	(Omitted.)

It will be noticed that the Canadian product contains 18 per cent. alcohol which the manufacturers declare is "the smallest quantity that will extract and preserve all the remedial properties of the ingredients." The stuff sold in the United States under the same name contains only 16.5 per cent. alcohol. Is it to be inferred that some of the "remedial properties" are lacking?



CANADA UNITED STATES

Photographic reproduction (reduced) of the labels of "Dr. Chase's Nerve Pills" as sold, respectively, in Canada and the United States. Chase's Nerve *Pills* use to be a "Nerve *Food*" in the United States—but *that* was before there was a law penalizing falsehood.

DR. CHASE'S NERVE PILLS

This somewhat insignificant humbug used to be called "Dr. Chase's Nerve Food" before the federal Food and Drugs Act made falsifying expensive. Then "Food" became "Tablets" and still later "Pills." It is still a "Food" in Canada. Compare:

CANADA	UNITED STATES
"Dr. Chase's Nerve Food."	"Dr. A. W. Chase's Nerve Pills."
"Builds up the system, Cures Thin and Watery Blood, Nervous Prostration, Brain Fag, Nervous Headache, Female Trouble, Pale & Sallow Complexion, Heart Failure, Dizziness & Fainting, Sleeplessness and General Weakness."	"Used in the Treatment of Thin and Watery Blood, Nervous Prostration, Brain Fag, Nervous Headache, Nervous Dyspepsia, Pale & Sallow Complexion, Irregular Heart Action, Dizziness & Fainting, Sleeplessness and General Weakness."
". . . makes it impossible for the following diseases and symptoms of diseases, to exist. . . ."	". . . make it next to impossible for the following diseases and symptoms of diseases, to set in: . . ."
". . . this great food cure . . ."	". . . this great nerve medicine. . . ."
"There is no preparation known which will so quickly create new, rich blood. . . ."	"There is no preparation known which will more quickly create new, rich blood. . . ."

It will be seen that, aside from the change in the name of the product, the difference in the claims is essentially the difference between the "lie direct" and the "lie with circumstance."

CANADA UNITED STATES

Photographic reproduction (reduced) of the labels of "Gino Pills" as sold, respectively, in Canada and the United States. Of course, gin cannot be put up in pill form and, therefore, it would be a violation of the United States Food and Drugs Act to sell this nostrum as "Gin Pills."

GINO PILLS

While it is obviously impossible to put up brandy, whisky or gin in pill form, one finds on the Canadian market "Gin Pills" which are recommended "*for the kidneys.*" The same preparation sold in the United States is not, of course, called "Gin Pills," as that would at once bring the manufacturers in conflict with the federal law prohibiting false or misleading statements regarding composition. Here we find them as "Gino Pills for the Kidneys." The variations in claims made for these pills in Canada and the United States, respectively, are not especially striking, but are nevertheless worthy of the study of those interested in truthful advertising:

CANADA	UNITED STATES
"Gin Pills for the Kidneys."	"Gino Pills for the Kidneys."
"The various ingredients composing the *formulae* are the best known to the medical profession . . ."	"The various ingredients composing the formulae are among the best known to the medical science . . ."
"For this purpose (laxative) there is nothing better than the National Lazy-Liver Pills."	"For this purpose (laxative) we know of nothing better than National Lazy-Liver Pills."

SUMMARY

The nostrums to which we have called attention are not the only ones whose varying claims in Canada and the United States have been examined. They are, however, sufficient to bring out these facts: The "patent medicine" industry as a whole is founded on falsehood; misleading and false claims will be made for such preparations, at least in the majority of cases, just so long as the manufacturers are subject to no restraint except their own consciences. As has been shown time and again in these pages, nostrum exploiters in the United States have greatly modified the claims for their products as such claims appear on the trade packages, because federal and state laws have provided penalties for falsehood and fraud. These same manufacturers have continued to falsify and mislead in those avenues of publicity (newspapers, etc.) which are not subject to legislative restraint. The same manufacturers have continued to falsify even on their trade packages in Canada where there is no law prohibiting it.

The "patent medicine" interests in the United States have complained loudly and frequently that their business has been and is unduly hampered by legislation. They have insisted that while it was admitted there were certain concerns in their line of business that were not above criticism, the business as a whole was no worse than any other industry. Unfortunately for them and still more unfortunately for the public, these protestations of innocence are not borne out by facts. Even a cursory study of the "patent medicine" problem will show that while in occasional and rare instances a "patent medicine" manufacturer will voluntarily modify his statements and temper his claims, in general, the "patent medicine" industry is just as dishonest as it dares be.

Garbage.—New York's garbage, by treatment in a $3,000,000 recovery plant of the latest type, yields grease for 70,000,000 cakes of soap; 1,500 tons of nitrogen; 2,000 tons of phosphoric acid, 500 tons of potash. With the nitrogen, and the glycerin from soap making, there is a recovery of material yielding 3,500,000 pounds of high explosives, while the phosphoric acid and potash, as well as the nitrogen, are valuable in the making of commercial fertilizers. This plant operating under the so-called Cobwell process, which treats garbage almost entirely by chemical methods, has effected increased recoveries of valuable products amounting to at least 25 per cent. more than recoveries under the best previous reduction methods used for New York's garbage. In soap, for instance, there is an additional recovery of grease for 10,000,000 cakes a year, and in high explosives material for 700,000 pounds. The chemical treatment followed not only eliminates all odors incident to the old boiling process, by which garbage was cooked for a long period in water, but saves many of the rich chemical elements which were formerly lost. Under the old process it is said a large percentage of these elements were cooked into a rich soup, and then the soup was thrown away. Moreover, a considerable percentage of grease was burned by the high temperature driers used before degreasing, and the cooking process had a splitting effect on the material which led to considerable losses of glycerin. The new process saves these. The plant is more expensive to install, but much more economical in operation.—*Weekly Bulletin.*

Correspondence

CORNEAL TATTOOING

To the Editor:—I notice in The Journal, Oct. 27, 1917, p. 1420, an article by F. H. Verhoeff of Boston on a substitute for tattooing the cornea with India ink for the purpose of obliterating white corneal scars, etc. His method consists in injecting a solution of India ink into the layers of the cornea by means of a hypodermic syringe. Never having tried this method, I am not in a position to criticize it; but it seems to me that it is not at all an ideal procedure. I have for years abandoned the old method of tattooing the cornea with needles and India ink. This procedure is undoubtedly satisfactory when skin tattooing is under consideration, but it is not at all satisfactory for corneal tattooing. It requires a good deal of force to thrust the needles into the cornea, and then when this is done the black stain produced by each needle is very minute, and the needles have to be thrust in over and over and over again, and even then a large area of the cornea will be left untattooed.

My method of tattooing the cornea is extremely simple. I merely take a cataract knife and scrape off the corneal epithelium where I desire to produce a black stain. This can be done with great accuracy, and is especially useful when we wish to produce a round stain simulating a pupil. Having scraped off the corneal epithelium with the exactness which is possible with this procedure, I then rub into the cornea a thick emulsion of the India ink with a little cotton tightly twisted on a toothpick or cotton holder. This is done thoroughly several times in order to force the ink to soak into the tissues. The eye is not closed for about ten minutes in order to give the ink an opportunity to stain the tissues. The usual postoperative dressings are then made. Of course, a certain amount of this stain will wear off, and it may be necessary to repeat the little operation in a few days or weeks until a good India ink stain is produced. Still, I have seen several cases in which only one treatment was necessary, and I do not remember having done it more than twice. Naturally, in the course of a year or two it is sometimes necessary to give the cornea another India ink staining.

This method of staining the cornea is simple, efficacious and accurate. It has always given satisfactory results, and is a procedure to be recommended.

Frank Allport, M.D., Chicago.

"SCIENCE"

To the Editor:—May I be permitted to correct a misstatement regarding the teachings of Christian Science which appeared in your issue of October 13 under the caption "Science," namely, that "for the Christian Scientist, germs do not exist; the tubercle bacillus is but a creature of the medical man's disordered fancy." Christian Science does not teach that germs exist only in the mind of the medical man. It teaches that disease, like physicality itself, is in the realm of false belief, and that is where it needs to be corrected or "cured" and not by something administered to the body. The Journal appears to consider such teaching as worthy only of a sneer; but it should not be forgotten that the profession, as a whole, is granting a constantly increasing importance to mental causes, such as fear, in the production even of germ diseases.

Our critic implies that to look through a microscope and see a germ settles the question between medicine and Christian Science in favor of the doctor. Of course it does not, any more than to bruise your knuckles on a stone floor settles the question as to materiality of matter. In spite of the bruised knuckles, the modern physicist insists that the "material" atom is a mass-point of force—absolutely unmaterial. In other words, another case of false belief. In the same way and for similar reasons the Christian Scientist, in spite of the microscope, is convinced that disease, like all evil, is the product of the human mind.

Christian Scientists and the medical profession do not agree as to what the mental factor is in a disease such as tuberculosis, but the profession would no longer contend that it is nothing.

Avery Coonley, Committee on
Publication for Illinois, Chicago.

[Comment.—As most of our readers probably know, Mrs. Eddy's followers have what is possibly the most alert press bureau of any organization in the world. Every article that can in any way be construed as a criticism of "Christian Science" is answered by the "Committee on Publication." Mr. Coonley's letter is of this class.

The mental processes of the professional "Christian Scientist" are so hopelessly awry that one must despair of answering the casuistic arguments offered. Mr. Coonley's letter would indicate that his sect believed that the medical profession took no account of the mental element in the treatment of disease, although, of course, it knows perfectly well that applied psychotherapy antedated not only Mrs. Eddy but Quimby also, by many centuries.

The statements in the letter above to the contrary notwithstanding, it *is* a fact that to Christian Scientists "the tubercle bacillus is but a creature of the medical man's disordered fancy"—in the sense, obviously meant in our editorial, of being the immediate and proximate cause of tuberculosis. The letter admirably illustrates the loose and illogical modes of thought employed by Mrs. Eddy's professional followers. Mr. Coonley points to the physicist's philosophical definition of matter as "a mass-point of force" as proof of the unmateriality of matter, and insists that bruising one's knuckles on a stone floor does not settle "the question as to the materiality of matter." To most normal intellects it *does* most effectively settle the question. Nor are "Christian Scientists" themselves averse to coming "down to earth" in certain phases of their "healing" activities. It is a matter of common observation and frequent comment that while Mrs. Eddy's followers insist that disease is wholly a "question of mind," they are by no means averse to being paid for their "treatments" by those conglomerations of "mass points of force" which, in the parlance of the unregenerate, are known as material dollars.—Ed.]

THE ETIOLOGY OF SCURVY

To the Editor:—I have read the editorial on this subject in The Journal (Sept. 1, 1917, p. 728), and think that my experience here may be of interest, as I treated about 3,000 cases in the year 1915.

This island lies in the Caribbean Sea close to and north of Venezuela, and the climate is very dry, there being only a few months a year in which it rains. The food of the poorer and laboring people consists chiefly of small or Guinea corn, corn meal, fish, generally salted, and a small amount of goat or sheep meat, fresh or salted and dried. In a normal year between April and November there are practically no green vegetables to be had except the small amount imported, which is hardly sufficient to supply the richer persons in the town. In a year of drought not only do the people suffer from a lack of green vegetables and fruit but all the rain water becomes exhausted, and then they must drink water from wells that are more or less brackish. During the years 1912, 1913 and 1914, so little rain fell that the people were unable to get any crops. Being helped by the government and by working in the mines and aloes plantations, they were able to buy enough corn meal to keep from starving, but they suffered greatly from scurvy.

That scurvy is probably a disease caused by the lack of some necessary substance contained in fresh vegetables and fruit is shown by the following observations:

The greatest sufferers were the people in the districts in which the food consisted almost entirely of corn meal.

The richer class living in the same districts under the same conditions but who were able to afford fresh vegetables and fruit did not show any symptoms of scurvy.

Lime juice helped to prevent and to cure.

As soon as the rains came and the people were able to get fresh vegetables, the scurvy disappeared.

This year has also been very dry; and although the people of the outlying districts have had good drinking water, they have not had any fresh vegetables for months, and I am again beginning to see patients with symptoms of scurvy. I have observed that those who have had scurvy are more susceptible to it.

George R. Hopkins, M.D., Aruba, Dutch West Indies

Queries and Minor Notes

Anonymous Communications and queries on postal cards will not be noticed. Every letter must contain the writer's name and address, but these will be omitted, on request.

ANTITYPHOID INOCULATION

To the Editor:—The statement has been made that during the Boer War there was at least a certain amount of antityphoid inoculation employed, and that in spite of this there was a large incidence of typhoid fever among the English troops. Can you give me any information as to the truth or error of this statement, or refer me to any medical literature from which I can gain such knowledge?

Winfred Overholser, M.D., Westboro, Mass.

Answer.—In the Boer War, according to the Antityphoid Commission Report made to the Army Medical Department of Great Britain in 1913, an extended trial of antityphoid inoculation was made by Sir Almroth E. Wright. The inoculation was voluntary, and there are official records of the inoculation of 14,626 men out of a total strength of 328,244 men who served during the three years of the war. "Owing to the difficulties of obtaining accurate statistical information, which appears to be inseparable from active service in the field, the evidence in the case of typhoid vaccine and its power to protect against attack proved disappointing, and it was only in certain units that the material was of sufficient homogeneity to be of value."

Dr. Wright believed that the extent of the disease was diminished about one-half, and that the mortality was favorably influenced to an even greater extent. At that time the cultures were heated to 60 C. in order to destroy their vitality. It has since been shown that this amount of heat injures or destroys to a great extent the power of the vaccine to produce a good response in the formation of those substances on which the body depends for its protection. According to Rosenau (Preventive Medicine and Hygiene), in 1900, during the Boer War, Wright, together with Leishman, prepared a vaccine and supervised the inoculation of 100,000 British troops. The results in India were quite encouraging, but for various reasons, the same procedure in South Africa was not as satisfactory as had been anticipated. Leishman explains the lack of success by saying that the vaccine may have been made less efficient by the use of too great heat in killing the bacilli.

In a recent address before the Clinical Congress of Surgeons, as reported in The Journal last week, Sir Berkeley Moynihan said that 98 per cent. of English soldiers have been voluntarily inoculated against typhoid, with the result that they have had only 292 deaths from that disease and only 6,022 cases altogether, whereas in the South African War they had 57,684 cases with over 8,000 deaths, although the present army, infinitely larger, is living under much more difficult circumstances.

SHOTGUN VACCINES FOR "COLDS"

To the Editor:—Has there been work done of sufficient extent to be of value in justifying use of mixed "shotgun" vaccines to abort or immunize "common colds," that is, rhinitis, pharyngitis, acute bronchitis, coryza, etc.?

Charles E. Bennett, M.D., Aneta, N. D.

Answer.—We know of no investigation which demonstrates that the use of the commercial mixed vaccines are of value in the prevention or treatment of "common colds" or of similar affections. The Council on Pharmacy and Chemistry accepts for New and Nonofficial Remedies mixed vaccines only on condition that their usefulness has been established by acceptable clinical evidence; so far it has not admitted any of the "influenza" or "catarrhal" mixed vaccines.

SALARY AND ALLOWANCES OF M. R. C. OFFICER

To the Editor:—1. If a physician with a dependent wife enlists in the Medical Reserve Corps, is any allowance made for his wife aside from his regular salary

2. When a physician accepts a commission, does his salary date from the time of his acceptance or from the time he is actually called into service or training?

C. M. Murrell, M.D., Matherville, Ill.

Answer.—1. No.

2. An officer's salary commences on the day on which he reports for active duty. He is on active duty when he goes into training.

Medical Education and State Boards of Registration

COMING EXAMINATIONS

Arkansas: Little Rock, Nov. 13-14. Sec., Dr. T. J. Stout, Brinkley.

Arkansas: Eclectic: Little Rock, Nov. 13. Sec., Dr. C. E. Laws, 803½ Garrison Ave., Fort Smith.

Connecticut: New Haven, Nov. 13-14. Sec., Dr. Charles A. Tuttle, 196 York St., New Haven.

Connecticut: Homeopathic: New Haven, Nov. 13. Sec., Dr. E. C. M. Hall, 82 Grand Ave., New Haven.

Connecticut: Eclectic: New Haven, Nov. 13. Pres., Dr. J. W. Fyfe, Saugatuck.

Delaware: Wilmington, Dec. 11-13. Sec., Dr. H. W. Briggs, 1026 Jackson St., Wilmington.

Florida: Jacksonville, Dec. 4-5. Sec., Dr. W. M. Rowlett, Citizens Bank Bldg., Tampa.

Kentucky: Louisville, Dec. 4-6. Sec., Dr. A. S. McCormack, Bowling Green.

Louisiana: New Orleans, Dec. 6-8. Sec., Dr. E. W. Mahler, 730 Audubon Bldg., New Orleans.

Maine: Portland, Nov. 13-14. Sec., Dr. Frank W. Searle, 776 Congress St., Portland.

Maryland: Baltimore, Dec. 11. Sec., Dr. J. McP. Scott, 137 W. Washington St., Hagerstown.

Massachusetts: Boston, Nov. 13. Sec., Dr. Walter P. Bowers, Room 501, No. 1 Beacon St., Boston.

Missouri: St. Louis, Dec. 17-19. Sec., Dr. George H. Jones, 206 Washington St., Jefferson City.

Nebraska: Lincoln, Nov. 14. Sec., Dr. J. J. Hompes, 612 Security Mutual Life Bldg., Lincoln.

New Hampshire: Concord, Dec. 10-12. Sec., Dr. W. S. Crosby, Beacon Bldg., Manchester.

Ohio: Columbus, Dec. 4-6. Sec. Pro-tem., Dr. Herbert M. Platter, 185 E. State St., Columbus.

South Carolina: Columbia, Nov. 13. Sec., Dr. A. Earle Boozer, 1806 Hampton St., Columbia.

Texas: Dallas, Nov. 20-22. Sec., Dr. M. F. Bettencourt, Mart.

Virginia: Richmond, Dec. 11-14. Sec., Dr. J. W. Preston, McBain Bldg., Roanoke.

West Virginia: Clarksburg, Nov. 21-23. Chairman, Dr. S. L. Jepson, Capitol Bldg., Charleston.

REPORT OF THE THIRD EXAMINATION OF THE NATIONAL BOARD OF MEDICAL EXAMINERS

The third examination of the National Board of Medical Examiners was held in Chicago, Oct. 10-18, 1917. The subjects of the examination and the relative value of each were: anatomy, 100; physiology, 75; chemistry, 75; pathology, 50; materia medica, pharmacology and therapeutics, 75; medicine, 200; surgery, 200; obstetrics and gynecology, 100; hygiene and sanitation, 50, and medical jurisprudence, 25. A percentage of 75 was required to pass. Falling to 65 per cent. in two subjects, or below 50 in one subject constituted failure. Of the sixty-five who applied, sixty-two were found to have the essential preliminary and medical qualifications, and twenty-nine of these appeared for the examination. Of these twenty-two passed, six failed, and one for good reasons had to withdraw before completing the examinations. The results for the candidates examined were as follows:*

PASSED

Names of Candidates and Colleges	Year of Graduation
Robert W. Keeton, Northwestern Univ. Med. School	1916
Gordon E. Hein, Northwestern Univ. Med. School	1915
Martin R. Broman, Rush Medical College	1915
Francis J. Scully, Rush Medical College	1915
William D. Inlow, Rush Medical College	1917
Frederick W. Slobe, Rush Medical College	1917
John W. Thornton, Rush Medical College	1915
Josephine E. Smith, Rush Medical College	1917
Harold L. Hickey, Northwestern Univ. Med. School	1917
George W. Scupham, Northwestern Univ. Med. School	1916
John W. Visher, Rush Medical College	1917
Edward F. Mielke, Rush Medical College	1917
Earle K. Hallock, Rush Medical College	1916
Carl Freund, Rush Medical College	1917
Frank W. Young, Northwestern Univ. Med. School	1917
Edmund Andrews, Rush Medical College	1915
Jay Ireland, Rush Medical College	1917
Arthur K. Baldwin, Rush Medical College	1916
Hermon G. Bumpus, Harvard Medical School	1915
Willard H. Waterous, Northwestern Univ. Med. School	1916
Aloysius J. Larkin, Rush Medical College	1916
Edgar H. Albers, Northwestern Univ. Med. School	1917

FAILED

Rush Medical College	1915
Northwestern University Medical School	1917
University of Pennsylvania	1913
Rush Medical College	1915
State University of Iowa Medical School	1916
Northwestern University Medical School	1917

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*The names are given in order of the numbers in the table of "Averages Obtained."

AVERAGES OBTAINED

Candidate's Number	Anatomy	Chemistry	Pharmacology, Materia Medica and Therapeutics	Obstetrics and Gynecology	Hygiene	Medicine	Surgery	Pathology	Bacteriology	Physiology	Medical Jurisprudence	General Averages of Candidates
1	75	56	90	87	84	85	87	88	80	90	90	87
2	81	76	94	85	88	88	89	84	90	88	84	86
3	77	88	88	75	84	83	84	87	88	76	92	83
4	85	73	72	82	82	86	87	92	88	82	90	85
5	85	76	84	82	90	87	88	82	82	92	84	85
6	85	61	96	92	84	88	85	85	80	88	88	85
7	80	63	86	90	85	84	89	85	86	80	92	84
8	82	70	90	100	76	87	74	80	70	87	80	82
9	91	76	84	85	75	85	77	88	84	76	65	81
10	63	80	72	87	92	88	85	70	80	81	85	81
11	77	84	84	75	86	79	82	85	78	88	80	81
12	71	64	78	85	86	84	85	79	84	85	80	80
13	68	88	84	90	70	85	80	71	75	77	84	81
14	91	72	72	75	76	88	82	81	76	85	76	80
15	67	73	84	76	76	86	83	90	78	80	84	80
16	75	80	72	70	76	80	91	76	78	85	84	79
17	75	83	78	76	76	85	90	83	80	76	84	79
18	74	89	85	82	66	84	90	72	74	81	72	79
19	72	86	85	87	82	82	87	76	76	60	76	79
20	76	60	88	90	70	82	76	80	75	82	69	79
21	54	81	63	90	76	80	85	84	76	84	80	78
22	80	64	84	75	65	82	75	68	76	72	88	75
23	60	54	86	75	62	79	82	84	70	74	60	74
24	72	59	84	75	62	84	69	76	65	72	72	73
25	76	64	80	72	60	85	90	63	68	71	74	73
26	72	64	88	64	60	78	90	80	60	64	50	70
27	51	52	78	64	52	88	85	64	72	70	72	68
28	61	49	76	69	65	78	63	75	78	72	64	67
General average by subjects.	74.2	72.6	83.6	81.1	74.3	84.3	83.9	79.2	77.2	80	80.4	79.2

EXAMINATIONS AND TIME ALLOWED

Subject	Kind of Examination	
	Written	Other, and Remarks
Anatomy	3 hours	Oral with prepared Spec. 20 min. for each candidate
Chemistry	3 hours	Two hours laboratory in physiologic chemistry
Physiology	3 hours	Laboratory 2 hours
Pathology	3 hours	Laboratory exam. 20 min. each cand.
Bacteriology	2 hours	Laboratory 2 hours
Materia medica, pharmacology and therapeutics	3 hours	Laboratory 2 hours
Medicine	3 hours	Clinical lab. ½ hour each cand.; clin. med. 3 hours
Surgery	3 hours	Lab. op. surg. and applied anatomy, 2 hours; clin. exam., 3 hours
Eye, ear, nose and throat	....	Clinical exam., 20 min. each candidate
Dermatology	....	Clinical exam., 20 min. each candidate
Obstetrics and gynecology	3 hours	Oral exam. of 10 min. for each cand.
Hygiene	2 hours	
Medical jurisprudence	2 hours	

The examination consisted of written, oral, laboratory and clinical tests. The questions asked were as follows:

ANATOMY

Written Examination.—1. Describe the elbow joint with overlying structures and muscular attachments in immediate vicinity. 2. Name cavities of heart and describe the valves. 3. Define synarthrosis, amphiarthrosis, diarthrosis. Example of each. 4. Through what arteries is collateral circulation established after ligation of common carotid? 5. Origin, insertion, action and nerve supply of (*a*) triceps extensor cubiti; (*b*) serratus magnus; (*c*) pectoralis minor; (*d*) biceps femoris. 6. Describe the lacrimal apparatus.

Oral Examination.—Each candidate was examined orally for twenty minutes during the course of the written examination.

Gross Anatomy.—For this purpose the skeleton, prepared museum preparations, and fresh dissections were used.

Histology.—Identification of specimens under the microscope, (1) skin epithelium, (2) liver, (3) cartilage, (4) small intestine, (5) spinal cord.

PHYSIOLOGY

Written Examination.—1. Describe the methods by which may be determined the events of the cardiac cycle in the right and left sides of the heart, respectively, in man. Detail the results. 2. (*a*) What is the normal stimulus of the respiratory nerve center? (*b*) What is meant by the "buffer" action of the blood salts and what is its use? (*c*) What condition supervenes when the "buffer" action is inadequate? 3. (*a*) What relation has the "pulse pressure" in an artery to the volume of blood passing through it? (*b*) What are the factors determining pulse pressure? 4. Give evidence as to the functions of the thyroid gland. 5. Describe the origin and function of secretin. 6. Give the various functions of the sympathetic nerve. 7. Describe the stages of protein digestion. 8. Give the qualitative and quantitative essentials for the diet of a working man.

Practical Examination.—Each candidate was required to make 4 or 5 tests, as time permitted, of the following: Demonstrate the circulation in the web, mesentery, tongue or lung of a curarized frog. Differentiate the various vessels and point out the specific character of blood flow in them. 2. On a minor arterial schema eject by an intermittent pump water through (*a*) a rigid tube without peripheral resistance; (*b*) a rigid tube with peripheral resistance; (*c*) through an elastic tube without peripheral resistance; (*d*) through an elastic tube with peripheral resistance. Describe the results and deduce from them an explanation of the fundamental features of the blood circulation. 3. With the polygraph demonstrate and describe the human jugular pulse with the carotid or radial pulse as a chronoscope. 4. Obtain by the auscultatory method the human blood pressures with the subject in the recumbent and in the standing positions. Discuss the results. 5. Compare the maximal blood pressures in the brachial artery when the arm is held at various levels. Explain results. 6. With the human subject in the supine position, obtain the maximal blood pressure in the brachial artery; now apply a sandbag to the abdomen and repeat. Explain the difference, if any. 7. Pith a frog or terrapin and demonstrate on it by faradic stimulation the inhibitory function of the vagus nerve. Apply to the heart a solution of atropin and repeat. 8. Draw carefully graphic tracings representing the following: (*a*) The radial pulse; indicate on it the various phases of the heart's activity. (*b*) The normal arterial blood pressure tracing in the dog as obtained with mercury manometer, and the effect on it of vagus inhibition of various degrees: Explain. (*c*) The arterial pressure tracing in a rabbit and the effect of stimulating the depressor nerve: Explain. (*d*) Tracings representing the "auricular" and the "ventricular" forms of the jugular pulse. 9. (*a*) On a revolving smoked cylinder obtain the curve of a single muscular contraction excited by an induction shock. (*b*) Obtain the summation of two contractions. (*c*) Obtain an incomplete and a complete tetanus. (*d*) Varying the strength of the current, obtain a series of contractions from minimal to maximal. 10. Demonstrate the action of curare on the transmission of the motor impulse in a frog's nerve. 11. Make a nerve-muscle preparation from a hind limb of a frog, preserving the sciatic nerve, and dividing it close to the cord, cutting away the thigh muscles, dividing the femur at its lower third and leaving intact the skin of the leg and foot. Suspend the preparation inverted by a clamp at the knee: The foot will be extended when the gastrocnemius muscle contracts. Introduce a galvanic current into the nerve for a few seconds. Note the period of contraction and the relative effects of ascending and descending currents. Make and break the current and describe the results. Dip the end of the nerve into a saturated solution of NaCl and describe the results. Pinch the nerve and note results. Tie a string tightly round the middle of the nerve and note the effects of pinching on either side of the ligature. 12. (*a*) In a frog in which the brain has been destroyed, note the powers which have been lost and preserved. (*b*) Suspend the animal by the lower jaw and describe the reflex obtained by mechanical and chemical stimulation. (*c*) Inject under the skin of the back 1 drop of a 1 per cent. solution of strychnin: Note the changed response to stimulation; note the effect of destroying the spinal cord: Explain results. 13. (*a*) With the materials provided, test the reaction of saliva. (*b*) By means of the reagents provided, trace the changes induced in starch paste by digesting it with saliva. (*c*) Note the effect of cooling, of boiling the saliva. 14. Pour a little defibrinated blood into each of the four test tubes: Keeping one for comparison, add to the second an equal volume of water and warm slightly; to the third add a few drops of ether or chloroform and shake; to the fourth add a little bile and shake. Note and explain the conversion into "laky blood." 15. Arrange the spectroscope and obtain a series of absorption spectra of hemoglobin with various dilutions of laky blood. Describe. Obtain the spectrum of reduced hemoglobin with Stokes' fluid, and then reoxidize. Prepare carbon monoxid, hemoglobin and compare its spectrum with that of oxyhemoglobin.

PHYSIOLOGIC CHEMISTRY

Written Examination.—1. What is an amino acid and how many and what amino acids are found in the protein molecule? 2. Give the characteristic color tests for proteins and the significance from a chemical standpoint of each test. 3. Define a purin body and tell what purin substances are formed in the animal body, what relation they have to one another, and in what form each is eliminated. 4. Give the steps in the formation of urea, uric acid and hippuric acid in the body, and the significance of an excess or a deficiency of each of these substances in the urine. 5. Discuss in detail the coloring matters of the blood and the urine, giving the formation and function of these coloring matters and the significance of their presence in excess in the urine.

Laboratory Examination.—Candidates divided into two groups. Each group allowed two hours. Questions asked: 1. Make a quantitative estimation of the sugar in a sample of urine. Determine quantitatively the amount of glucose. 2. Estimate the amount of free hydrochloric acid in a sample of gastric content. 3. Make and report on the chemical and microscopic examination of a sample of urine. 4. Make and report on the examination of a sample of gastric content. 5. Determine the presence or absence of albumin reducing sugar. 6. Make and report on the chemical and microscopic examination of a sample of urine.

MATERIA MEDICA AND THERAPEUTICS

Written Examination.—Answer the first six questions; of the remaining six choose four: 1. (*a*) Give the source and physical properties of strychnin. (*b*) Describe the action of strychnin on the spinal cord. 2. (*a*) Describe two therapeutic uses of atropin, and state the proper dose to be given in each instance. (*b*) Describe two therapeutic uses of caffein, and state the proper dose to be given in each instance. 3. (*a*) Describe the source and physical properties of morphin. (*b*) Explain the analgesic action of morphin. (*c*) Explain the constipating effect of opium. 4. (*a*) What are the different stages of ether anesthesia? (*b*) Describe the stage of surgical anesthesia. (*c*) Describe the effect of hydrated chloral on the central nervous system, and give the principal therapeutic uses. 5. (*a*) Describe the pharmacologic action of digitalis on the heart muscle. (*b*) In which forms of cardiac disturbance does digitalis exert its best therapeutic effect? 6. What are the indications for the use of mercury in syphilis? 7. (*a*) Discuss fully the administration of quinin in malaria. (*b*) Write a prescription containing quinin, with full directions to the patient. 8. (*a*) Give the source of salicylic acid. (*b*) Describe the effects of large doses of the salicylates. (*c*) Write a prescription containing sodium salicylate, with full directions to the patient. 9. Describe the pharmacologic action and therapeutic use of epinephrin. 10. Name two dissimilar drugs classed as circulatory depressants, and state in what conditions you would use each. 11. Name two evacuants acting mainly on (*a*) small intestine; (*b*) large intestine; (*c*) rectum. (*d*) Define a cholagogue, and give one example. 12. (a) Name three preparations of iron used in medicine. (b) Discuss the relative value of iron and arsenic in anemia.

Practical Examination—Individual Laboratory Tests—One Hour.—The candidate is supplied with two frogs and two unknown test solutions. Inject 1 c.c. of the drug solution furnished into the abdominal lymph sac of the frog. Observe the effects and make a careful protocol and record of the changes in the (a) skin; (b) pupils; (c) reflexes; (d) general condition. Discuss the results, and give opinion as to the drug used.

Demonstration Test—One Hour.—A dog is prepared as follows: Anesthetized with ether, trachea exposed and severed, after which tracheal cannula is inserted and connected with ether bottle, artificial respiration being continued. The carotid artery is exposed and artificial cannula inserted, connected with manometer. A cannula has been inserted into Wharton's duct, and the chorda tympani and vagus nerve isolated, doubly ligated and cut. The right femoral vein is exposed and cannula inserted. Various drug solutions (marked A. B. C., etc.) will be introduced into the animal and the candidate is required to record his observation as to the effect on blood pressure, heart rate, respiration (rate and depth), salivary flow and size of pupil, and to interpret the same as indicated in each instance. 1. Note the effect of stimulation of the peripheral chorda tympani, and of the central and peripheral ends of the vagus. 2. Note the effect of the injection of 2 c.c. of drug solution A. 3. Repeat test No. 1. 4. Note the effect of the injection of 2 c.c. of drug solution B. 5. Repeat test No. 1. 6. Note the effect of the injection of 2 c.c. of drug solution C. 7. Repeat test No. 1. 8. Note the effect of a second injection of drug solution A. Diagnose the drug used in each instance and state the reasons.

BACTERIOLOGY, MEDICAL ZOOLOGY AND IMMUNITY

Written Examination.—1. (a) What are the most important points differentiating streptococci from pneumococci? (b) What are our present views as to types of pneumococci, and what bearing has this on the success of serum treatment of pneumonia? 2. (a) What are the general characteristics of *B. dysenteriae*, and how do we separate Shiga strains from Flexner ones? (b) Name the anaerobic and aerobic spore bearers of pathogenic importance in man. 3. (a) Name the various organisms which may cause meningitis. (b) What are the laboratory methods of diagnosis of a tuberculous meningitis, and what are the characteristics of the spinal fluid of such a case? 4. (a) How does an antitoxic serum differ from an antimicrobic one, and give two or more examples of each? (b) What is the difference between active and passive immunity. 5. (a) What are the laboratory methods for the diagnosis of a hookworm infection, and outline the life history of the parasite? (b) How do the segments and head of *Dibothriocephalus latus* differ from those of *Taenia saginata?*

Laboratory Examination—Two Hours.—Isolation and description of plate cultures prepared from discharge of the throat. Given several animal parasites for identification. Given several stained preparations for identification of special micro-organisms.

PATHOLOGY

Written Examination.—Answer five of the following questions: 1. Discuss post-traumatic embolism. 2. Contrast in parallel columns the distinguishing characteristics, gross and microscopic, of benign and malignant tumors of the breast. 3. Contrast in parallel columns the distinguishing characteristics, gross and microscopic, of the lesions in internal organs, of syphilis and tuberculosis. 4. Discuss the pathology of chronic interstitial hepatitis. 5. State briefly the pathologic conditions which may be present ten hours after the receipt of a nonfatal perforating gunshot wound of the abdomen. 6. An unknown middle-aged man has died six hours after having been found on the street, apparently in a drunken stupor: Give the general necropsy technic and the probable essential findings. 7. A man 48 years of age has died two years after the onset of typical pernicious anemia: Tabulate the gross and microscopic changes probably present in the several affected organs.

Laboratory Examination.—During the course of the written examination each candidate was given gross specimens and microscopic sections chosen from the following: Gross: Pulmonary tuberculosis; arteriosclerosis; infarct of spleen; carcinoma of breast; hepatic cirrhosis; typhoid ulcer of bowel. Microscopic: Glomerular nephritis; osteosarcoma; uterine polyp; leukoplakia; broncho-pneumonia.

MEDICAL JURISPRUDENCE

Written Examination.—1. (a) Define lunacy as legally recognized. (b) Name and briefly describe the varieties of insanity usually recognized. (c) What do you understand by "interdiction"? 2. (a) Define the medicolegal importance of feigned diseases. (b) Give three (3) examples of feigned diseases and indicate the method by which each may be discovered or confounded. 3. (a) Name one irritant poison, and give the symptoms or evidences found. (b) Give the mode of determining that death was due to such poison, including the postmortem findings. 4. (a) What is the difference between a "material" and an "expert" witness? (b) Give an example of a hypothetic question. 5. (a) What is the function of a coroner? (b) Give brief outline of the procedure to be followed in examining a body supposedly dead of asphyxiation by illuminating gas.

HYGIENE

Written Examination.—Give the routes of entry and exit of the casual organism in each of the following diseases: mumps, syphilis, dysentery, cerebrospinal meningitis, malaria. 2. What rôle does environment play in the spread of disease? 3. Discuss the advantages and disadvantages, from the hygienic point of view, of milk as a food. 4. Outline the steps in the eradication of an epidemic of bubonic plague. 5. What are the public health duties of a physician? 6. Discuss the biologic transmission of disease, and name the diseases so spread.

MEDICINE

Written Examination.—Answer ten of the following questions: 1. (a) Discuss the etiology of aortic insufficiency as it pertains to childhood, the adult, and the patient past 50 years of age. (b) Describe the murmur and vascular phenomena characteristic of aortic insufficiency. (c) What is understood by the incomplete types of angina pectoris? 2. Give the physical and other clinical signs required as a basis for a definite or probable diagnosis of pulmonary tuberculosis in the absence of the demonstration of tubercle bacilli in the sputum. 3. (a) Discuss the diagnostic signs of acute appendicitis and the indications for surgical treatment. (b) Give the diagnostic symptoms of chronic disease of the appendix. 4. (a) Discuss the clinical significance of nucleated red cells in blood smears (properly stained). (b) Define splenic anemia, and discuss its relation to diseases of the blood. 5. (a) Describe the urinary findings in chronic nephritis. (b) Discuss the causes of death in chronic nephritis. 6. (a) Discuss briefly the principles which govern the diet treatment in diabetes mellitus. (b) What are the criteria of improvement in this condition? 7. Outline in parallel columns the differential diagnostic signs of epilepsy and hystero-epilepsy. 8. In the case of a man 48 years of age with a right motor hemiplegia which came on suddenly following a short period of unconsciousness: (a) Discuss the several causes of this condition. (b) Outline the characteristic symptoms of the above. (c) Discuss the prognosis. 9. In the case of a child 6 months of age affected with summer diarrhea, give the method of arriving at a diagnosis, and outline a plan of treatment for the condition. 10. Given a case of a girl 8 years of age who is suddenly taken ill with vomiting, headache and a moderate fever: a laxative is given, but the fever continues with an increase in the headache and vomiting. Twenty-four hours later a thorough action of the bowels is obtained, but the temperature is still 102.6 F., pulse 112, respiration 24. The physical signs at this time are negative with the exception of some rigidity of the neck. State how you would investigate further, and give the plan of treatment according to the results obtained. 11. (a) Discuss the etiology of amebic dysentery. (b) Outline a plan of treatment for this condition. 12. Describe the characteristic symptoms of plague.

Laboratory Examination—One Hour.—1. Specimen of urine for chemical and microscopic examination, the candidate being given one of the following specimens: (a) With albumin and casts; (b) with sugar and diacetic acid; (c) with large amount of pus. 2. Examination of slides representing the following: Plasmodium malariae, leukemia, and pernicious anemia.

A written report on each specimen was required, and a brief oral examination on the clinical condition represented by the specimen.

Clinical Examination.—This examination was held in laboratories and wards of Cook County and Presbyterian hospitals.

Bedside Examination—Two Hours.—To each candidate was assigned a patient referred to as a *long case,* and given one hour and twenty minutes for the examination of the same. A written clinical history was required, which included the physical examination, and he was expected further to ask for the laboratory tests, with other special findings required by the nature of the disease condition. During twenty minutes of the time allowed, he was examined orally on the clinical history and diagnostic conclusions.

The candidate was assigned to a second patient referred to as a *short case,* where the physical examination was made before the examiner, and he was examined in regard to the findings and the disease condition concerned. For a period of ten to twenty minutes the candidate was further examined by the examiner in neurology in connection with patients presenting special neurologic conditions.

SURGERY

Written Examination.—Answer five of the following questions: 1. Give symptoms, prognosis and treatment of abscess of the brain. 2. Give diagnosis and differential diagnosis of carcinoma of the lip. 3. Give diagnosis, differential diagnosis and treatment of chronic cystic mastitis. 4. Give diagnosis, differential diagnosis and treatment of strangulated inguinal hernia. 5. Give diagnosis, prognosis and treatment of fracture of upper third of femur. 6. Give diagnosis, differential diagnosis and treatment of stone in the bladder.

Laboratory Examination in Operative Surgery and Applied Anatomy: Candidates were examined in two groups; two hours for each group. (a) *Operative test:* one of the following operations on a dog: 1. Trephine; 2. tracheotomy; 3. thoracotomy; 4. nephrectomy; 5. gastrostomy; 6. tendon suture; 7. nerve suture. (b) *Applied Anatomy:* Examination on living models. 1. Boundaries of anticubital fossa and relations of contents. 2. Describe the triangles of the neck and their contents. 3. Position and relation of structures at ankle joint. 4. Demonstrate Nelaton's line and Bryant's triangle. 5. Course and distribution of ulnar and external popliteal nerve.

Clinical Examination.—This was held in the wards at Presbyterian and Cook County Hospitals, two hours being allowed for each candidate. During one hour a long case was examined, and a written history prepared, after which a quiz was given of twenty minutes. Each candidate was also given two short cases which he could examine for fifteen minutes and then stand an examination of five minutes on each case.

Each candidate was examined thirty minutes on appropriate cases by the examiner in eye, ear, nose and throat diseases, and the same length of time by the examiner in dermatology.

OBSTETRICS AND GYNECOLOGY

Written Examination.—1. Describe briefly the changes that take place in the fecundated ovum up to the time that segmentation is complete. 2. Discuss pernicious vomiting in pregnancy. (a) Etiology; (b) Symptoms, including urinary findings; (c) Treatment. 3. Describe the clinical history, mechanism of labor and the treatment of a face presentation, left mento-anterior position. 4. Discuss the pathogenesis, symptoms and differential diagnosis of acute pyelitis complicating pregnancy. 5. Bacteriology, symptoms and treatment of puerperal sepsis. 6. Causes, ordinary complications and treatment of procidentia uteri. 7. Causes, symptoms and treatment of chronic en [illegible] Causes, symptoms and treatment of vesicovaginal fistula [illegible] diagnosis and treatment of purulent pelvic inflammation. 10. Diagnosis, prognosis and treatment of coexisting uterine fibroids and pregnancy.

Oral Examination.—During the course of the written examination each candidate was examined orally for ten minutes in clinical obstetrics.

Italian Colony for Malarial Children.—Five years ago a society was founded at Rome to care for children with malaria, and a sanatorium was equipped for them at Cosenza. The children are from the families coming to work during the season in the salt marshes. The pavilions sheltered twenty-five the first year and up to seventy-seven in 1913. The number since has somewhat declined. The children live out of doors practically all the time, and have regular school and other advantages. The sanatorium is not endowed but is supported by voluntary gifts. Its official title is the Colonia silana per bambini malarici, and the headquarters are Piazza Nicosa, Rome.

Book Notices

The Treatment of Infected Wounds. By A. Carrel and G. Dehelly. Translation by Herbert Child. With Introduction by Sir Anthony A. Bowlby, K.C.M.G., K.C.V.O., F.R.C.S., Surgeon General, Army Medical Service. Cloth. Price, $2. Pp. 238, with 97 illustrations. New York: Paul B. Hoeber, 1917.

Shortly after the outbreak of the war, Alexis Carrel, M.D., of the Rockefeller Institute, in collaboration with H. D. Dakin, Ph.D., of the Herter Laboratories, New York, seeking to discover the best means of treating war-wound infections, adopted the "*chemiotherapeutic*" method. To be successful, it was necessary, according to their views, to choose (1) a suitable antiseptic, which, in degree of concentration used and in length of time it must be applied, would be fatal to microbes but would "not produce obvious damage to the tissue," and (2) a proper surgical technic for the antiseptic treatment of the septic wounds. Carrel and Dehelly have told the story of the evolution and practice of this Carrel-Dakin method in this book, and it has been ably translated from the French by Herbert Child.

Unfortunately the chemical phase of the treatment has received far more attention than the surgical phase, owing, in part, to the needless advertising of antiseptics under nonscientific names. For the past two years, medical literature has been flooded with accounts and descriptions of Dakin's fluid, Dakin's fluid modified, Dakin's new antiseptic (Chloramin-T), Dakin's newest antiseptic (Dichloramin-T) and Dakin's water sterilizer (Halazone), etc. Yet in all these "discoveries" the potent agent has always been active chlorin (positively charged chlorin $[Cl^+]$), the same substance with which the medical profession has had well tried experience when employing calcium hypochlorite (bleaching powder) and the much abused solution of chlorinated soda (Labarraque's solution). True, Dakin has introduced some more adaptable forms for utilizing the available (oxidizing) chlorin; but they are not free from objections, nor do they seem to deserve the dignity that has been accorded them. Carrel and Dehelly apparently believe that the modified Dakin's solution ("neutral solution of chlorinated soda, N. N. R.") is the agent *ad perfectum.* The details of making this solution are given in full—essentially the treatment of a solution of assayed calcium hypochlorite with calculated amounts of sodium carbonate and bicarbonate, and dilution of the resultant liquid until it has a strength of from 0.45 to 0.50 per cent. sodium hypochlorite —no more, no less. The authors uphold Dakin's claim that this solution is neutral, is isotonic with the blood, has a high bactericidal power, is very slightly toxic, that "tissues provided with a normal circulation resist perfectly the action of Dakin's solution under the conditions of our experiments," etc. In the introduction the authors, in criticizing other work, state that "proceedings of learned societies are laden with reports based for the greater part on experiments and observations, incomplete, vitiated by faulty methods." We therefore expected this book to be scientifically reliable, but our anticipations have in many instances met disappointment. The terms used, such as "chloride of lime," are archaic, and much analytic evidence is lacking. The method of assay for the available chlorin in calcium hypochlorite directs that hydrochloric acid may be employed. This will give high results because of presence of chlorate; hence it is important that acetic acid and not hydrochloric acid be used. After the solution has been prepared, Dakin devised a method of testing its "neutrality" by throwing some powdered phenolphthalein on the surface of the solution; absence of a red color, he states, shows that it is not alkaline. It is, indeed, surprising that phenolphthalein should thus be used when every student in elementary analysis is taught that it is not reliable in such conditions. Dakin's solution is *not* neutral, but is alkaline, and should be alkaline when prepared in the manner described. If to some of Dakin's solution alkali be added, and the solution then tested by phenolphthalein, it will still give the "neutral" reaction. Just what limit of alkalinity the test indicates in practice awaits to be seen. The statement is also made in this book, and considerable stress has been laid on this point by various writers, that Dakin's solution "is isotonic to blood serum." However, McClendon has recently shown that, if the directions are followed, Dakin's solution is quite hypertonic. It may be that in this connection Dakin has a point in common with the adversary of chemical antiseptics, Sir Almroth Wright. In a comparison of the superiority of Dakin's solution over solution of chlorinated soda (Labarraque's solution), no data are given as to the source or composition of the latter. After all that has been written, it is possible that again we shall witness the completion of the cycle, with Labarraque's solution (diluted) as the beginning and the end, while some such salt as sodium bicarbonate will be added for hypertonicity.

Technical surgery in the war zone has had an indefatigable worker in Alexis Carrel. That he has done wonderful work is becoming better recognized, although the credit for the work has been inadvertently hidden by the mystery of Dakin's solution. It is still debatable whether the success is due to the irrigation of the wounds by hypochlorite solutions, as he explains in this book, or to the careful study of the patient, the bactericidal control of the wound, and the constant irrigation, in other words, cleanliness—asepsis.

Despite the foregoing criticisms, the book is well worth reading by every physician interested in the treatment of wounds. The reader should consider it in a conservative frame of mind, and not allow himself to be carried away by the enthusiasm that unfortunately attaches to the introduction of every new therapeutic procedure.

Medicolegal

Death from Fasting and Water Cure

(Feige vs. State (Ark.), 194 S. W. R. 865.)

The Supreme Court of Arkansas reverses for error in the trial a conviction of defendant Feige of the crime of manslaughter, and remands the case for a new trial. The court says that one Stratton, who had been stricken with paralysis, employed the defendant to treat the disease according to a fasting and water cure which was being practiced by the latter, which required the patient to abstain totally from the use of foods, and to drink all the water possible. The defendant took Stratton through a thirty-five day fast. During the last seventy-five hours of the fast, Stratton was seized with a severe attack of hiccups, to relieve him from which the defendant placed a wide leather strap around his body and buckled it up as tight as he could draw it. Mrs. Stratton became alarmed; the defendant was discharged, and two physicians were employed. When they took charge of the patient he was in a semicoma; his pulse was weak, fast and intermittent. They gave him a hypodermic of sparteine and then treated him for hiccups and a weakened condition. He recovered from the hiccups, but never recovered from the weakened condition, and died at the expiration of five days. The evidence on the part of the state tended to show that the treatment prescribed and administered by the defendant to Stratton was irrational, unreasonable, unscientific, and the proximate cause of his death. The evidence on the part of the defendant in a measure tended to show that the fasting and water cure, as practiced by him, was rational, reasonable and scientific, and had wrought wonderful cures, and that it might have worked a cure on Stratton had he been permitted to continue the fast. The cause was submitted to the jury on the theory that one who practices medicine for a remuneration would be guilty of involuntary manslaughter if death resulted to the patient on account of gross ignorance or lack of skill in selecting and administering the remedy. The instruction embodying this idea correctly declared the law as applicable to the theory advanced by the state. None of the instructions given clearly presented the theory of the defendant. The evidence in the record warranted an instruction allowing for a mistake in judgment. The defendant was at least entitled to an instruction defining the difference between a fe[illegible] lack of knowledge and skill, on the one hand, and a [illegible]ke of judgment, on the other. In words, the jury should not have been left in a position to confuse a mistake of judgment with gross ignorance or lack of skill. The defendant asked, and was refused, the following instruction which correctly presented the law applicable to the theory advanced by him, and to which he was entitled on the whole record: "Involuntary manslaughter is the involuntary killing done without design, intention, or purpose of killing, but in the commission of some unlawful act, or in the improper performance of some lawful act. For a mere mistake of judgment in the selection and application of remedies resulting in the death of his patient, a physician is not criminally liable; and whether one who assumes to practice medicine is grossly ignorant of the art or the selection of remedies or their application, or inapplicable or rashly applied, are all questions to be determined by the evidence." It was also insisted that an error was committed because the prosecuting attorney referred to the fact that the defendant did not have a license to practice medicine. The trial court indicated that it was an improper argument, as that issue was not involved in the case. It is unnecessary for the supreme court to comment on it, as the prosecuting attorney will not likely repeat the statement on a new trial. There was no error in a refusal to permit the defendant to read excerpts to the jury from a book entitled "McFadden's Physical Culture."

Not Bound to Follow Patient and Be Liable for Care of Wound

(Miles vs. Harris, (Tex.), 194 S. W. R. 839.)

The Court of Civil Appeals of Texas affirms a judgment rendered in favor of the defendant, and denies the plaintiff a rehearing, in this action for alleged negligence in letting a gauze packing remain in the body of the plaintiff's wife, on whom the defendant performed an operation in the abdominal region. The court says the defendant's evidence was to the effect that he performed the operation in the usual way; that the insertion of the gauze pack was necessary; that several days after the operation he attempted to remove the gauze pack, but the removal created or again started a dangerous flow of blood, which, under such circumstances as shown by the testimony, made it necessary to desist; that the plaintiff removed his wife from the defendant's sanatorium without the defendant's consent, and over his objection, during his temporary absence. The defendant and the attendant physician and nurse all testified to this fact, and further that the plaintiff was then informed that the pack had not been removed, because of which, and because of the presence of fever, it would be dangerous to remove the patient. The evidence further seemed uncontradicted that the family physician knew the gauze had been placed in the wound, and that, on the return of the plaintiff's wife to her home, he suspected its presence, but relied wholly on the assurance of the plaintiff and his wife that it had been abstracted. That there was evidence in behalf of the plaintiff of contrary import on one or more of the submitted issues could not alter the conclusion. Such evidence merely presented a conflict, which it was the function of the jury to determine. Under such circumstances and under the findings of the jury, the court knows of no rule that made it the duty of the defendant to follow the patient and be further liable for the due care of her wound. Again, the court says that it would seem that about the only material issue necessary for submission was the issue of whether the defendant was guilty of negligence which directly and proximately caused the gauze pack to remain in the person of the plaintiff's wife longer than it should have remained therein. That the defendant may, as the plaintiff insisted, have failed to remove the gauze in time; may have permitted the abdominal wound to heal without its removal; may have failed to inform the plaintiff or his wife of its presence in the body of Mrs. Miles at and before her removal from the sanatorium; that the defendant may have failed to advise the family physician that the gauze had not been removed—all seemed to constitute circumstances merely from which to infer negligence which resulted in the gauze remaining in the person of Mrs. Miles longer than it should. They were not, as it seems to the court, issues of themselves, but constituted mere evidences of the main fact to be proved, and hence it was not necessary to submit them to the jury in the form of special issues. If the defendant was not guilty of negligence in permitting the gauze pack to remain in the person of Mrs. Miles, as the jury found, it could not be material in this case that she suffered from that cause, for in such case the defendant at least could not be legally bound to respond in damages.

Society Proceedings

COMING MEETINGS

Amer. Public Health Association, Washington, D. C., Dec. 4-7.
Southern Medical Association, Memphis, November 12-15.

INTERSTATE ASSOCIATION OF ANESTHETISTS

Meeting held at Toledo, Ohio, Oct. 9-11, 1917

The President, Dr. Isabella C. Herb, Chicago, in the Chair

Nitrous Oxid-Oxygen Anesthesia

Dr. Charles W. Moots, Toledo, Ohio: Any operation of modern surgery can be satisfactorily performed under gas-oxygen anesthesia alone, without even the adjunct of local infiltration with novocain. Team work involves complete cooperation of the entire surgical force during the preoperative, operative and postoperative periods. Accurate diagnosis, painstaking preparation, sedatives, alkalinization, a preliminary narcotic and cheerful environment suffice to bring the patient to the operating room in the best possible condition for operation and anesthesia. The extreme Trendelenburg posture is never permitted, and any other changes of position are gradually made. The velvet touch and thorough saturation with the anesthetic give sufficient relaxation for any abdominal work. Experience shows that nothing serious happens to a patient on the table without showing circulatory changes. Therefore my expert anesthetists keep me continually informed regarding systolic, diastolic and pulse pressure, along with the pulse rate and the respiratory rate and volume. The character of the respirations is of great importance, especially in hazardous risks.

Further Researches in Blood Changes Under Nitrous Oxid-Oxygen Anesthesia

Dr. Theodore D. Casto, Philadelphia: In a previous paper I reported that nitrous oxid-oxygen anesthesia in man gives rise to a decrease in the erythrocytes, and that thirty or forty minutes after anesthesia there is a tendency for the count of erythrocytes to return to the normal value determined prior to anesthesia. My present communication includes, besides cellular alterations, a consideration of the influence of nitrous oxid-oxygen anesthesia on the degree of *alkalinity of the blood*. Albino rats were used for experimental purposes. Marriott's method of determining the hydrogen ion concentration, to determine the alkaline reserve, was used. Anesthesia was continued from thirty to sixty minutes. After definite periods of anesthesia, the animals were killed by quick decapitation, and blood counts and hydrogen ion concentration tests made. In the blood counts of twenty-one animals, the erythrocytes showed a difference of 4.8 millions per cubic millimeter between the highest and the lowest counts. The erythrocytes were decreased after gas-oxygen anesthesia for from thirty to sixty minutes, the maximum decrease being 70 and the minimum 1 per cent., with an average of 25 per cent. Macrocytes and microcytes were present in a few cases, but no poikilocytes or nucleated cells. Reaction to staining was slightly diminished in the erythrocytes in a few animals. The leukocyte count revealed an increase in eight experiments and a decrease in twelve. A study of the different varieties of leukocytes, however, showed a marked tendency on the part of the polymorphonuclear lymphocytes to increase. Of the twenty animals studied, eighteen gave a decrease in polymorphonuclear *neutrophils*, varying from 1 to 75 per cent., and sixteen of the animals gave an increase in lymphocytes varying from 5 to 23 per cent. The transitional eosinophils showed no change of special interest. There was no constant change in the segmentation of the polymorphonuclear neutrophils.

Liquid Air and Electrolytic Oxygen for Anesthetic Purposes

Dr. C. C. McLean, Dayton, Ohio: The increasing demand for oxygen in medical work makes it imperative to secure a pure and cheap supply of oxygen. Commercial oxygen for the welding process is now produced by the atmospheric or electrolytic methods. Medicinal oxygen is produced chemically. Chemical oxygen must have its poisonous chlorin residue eliminated. In neither the liquid air nor electrolytic process is chlorin contamination a problem. The impurity in electrolytic oxygen is hydrogen, the impurity in liquid air oxygen is nitrogen, both inert gases, and so far as is known, harmless in the quantities in which they are found. Provided the commercial oxygen is prepared for medicinal purposes and stored in cylinders not previously contaminated by poisonous gases, it may be utilized without danger. The following standards of purity are recommended: The gas should be neutral to moist litmus paper, and when passed through an aqueous solution of silver nitrate it should produce no turbidity. Not more than an opalescence should be produced when 2 liters of the gas are passed slowly through an aqueous solution of barium hydroxid. When 5 liters of gas are passed slowly through an aqueous solution of sodium hydroxid, then over heated copper oxid and finally through an aqueous solution of barium hydroxid, no turbidity should be produced. The gas should contain at least 94 per cent. of oxygen on the dry basis, and should contain no liquids and no solids.

Lung Complications Following Operations Under Anesthesia

Dr. E. I. McKesson, Toledo, Ohio: In a compiled series of 39,438 operations under all forms of anesthesia, lung complications followed in 3.03 per cent. of the cases in which figures are available. There was a total mortality of 1.06 per cent. Of these lung complications, 48 per cent. were pneumonia; and of the pneumonia cases, 48 per cent. were fatal. In one of the series of cases, 70 per cent. of the lung complications occurred in the five winter months. In attempting to reduce the incidence of postoperative lung complications, it is essential to maintain the temperature of the operating room at 80 F., to use a thick, warm, comfortable mattress on the operating table; to avoid careless operating, and to prevent the patient from sweating. It is equally as important to institute prophylactic measures of oral hygiene previous to operation, and for the anesthetists to use such methods of narcosis and technic as maintain an open airway, preclude the hypersecretion of mucus, and obviate the inspiration of blood or septic material. After operation, patients should be returned to a warm bed, should be protected from drafts, and should be permitted their customary weight of underwear. Etherization should be avoided in all cases in which it is contraindicated. Tight binders should be eliminated, sufficient opiate should be given to relieve pain, and full breathing should be encouraged. The position of the patient in bed should be changed frequently during the first week.

Some Observations on the Causes of Postoperative Nephritis

Dr. Karl R. Ruddell, Indianapolis: These observations are the result of a critical study of about 500 cases to determine the relative importance of ether anesthesia and focal infection in the causation of postoperative nephritis. In the series, 59.3 per cent. examined before operation showed evidence of an existing nephritis; 5.6 per cent. showed albumin alone; 0.7 per cent. showed albumin and pus cells, and 17 per cent. showed albumin, pus cells and casts. In the postoperative urines, 64 per cent. gave evidence of kidney involvement, an increase of 4.7 per cent. The majority showing postoperative kidney disturbance, in which the preoperative urines were normal, proved to be simple cases of albuminuria which subsided in a few days. Postoperative nephritis, in my opinion, is produced by a combination of causes, among which are the existence of a kidney already crippled by infection; an increase in waste products to be eleminated, incident to operative trauma, and possibly the dissolution of lipoids; a decrease in the liquid output due to a diminution in the ingestion of liquids, and an increased loss of fluids through the skin, lungs and intestinal tract; a lessening of its eliminative power by a lowered blood pressure in the kidney itself; a lowering of the power of resistance of the body by loss of heat due to prolonged anesthesia and shock; and lastly, the filtering of bacteria and their toxins, thrown directly into the blood and lymph streams from focal areas of infection. Ether plays a very insignificant rôle in the production of postoperative nephritis.

Comparative Dangers and Availability of Nitrous Oxid-Oxygen Anesthesia

Dr. J. R. McCurdy, Pittsburgh: While the anesthetic statistics collected by A. H. Miller give nitrous oxid-oxygen anesthesia the lowest mortality, it is interesting to note that deaths under this anesthetic are becoming more frequent as it comes into more general use. These fatalities can almost invariably be traced to incompetent or inexperienced administrators, extrahazardous risks, or the pushing of the anesthetic beyond safe limitations to accommodate the demands of the operator for greater relaxation. In the hands of experts, nitrous oxid-oxygen anesthesia is establishing itself as the safest anesthetic. Its chief danger is asphyxia, and this untoward complication can be almost instantly corrected by the proper admixture of oxygen. Its effects on the respiratory system are minimal, and it can be used to advantage in the presence of all pulmonary complications. It does not lower body resistance or disturb metabolism, and its administration is singularly free from postoperative pulmonary complications. Even uncompensated heart lesions may be safely handled, and lengthy administrations do not show the cardiac collapse incident to ether depression following its initial stimulation. Of all anesthetics, it affects blood pressure the least, and contrary to the usual opinion, it is not contraindicated by preexisting hypertension.

Current Medical Literature

AMERICAN

Titles marked with an asterisk (*) are abstracted below.

American Journal of Obstetrics and Diseases of Women and Children, York, Pa.

October, LXXVI, No. 4

1 Study of Chloroform, Ether and Nitrous Oxid-Oxygen in Pregnancy and Labor. C. H. Davis, Chicago.—p. 557.
2 Nitrous-Oxid Analgesia in Four Hundred and Seventy-Six Cases of Obstetrics. W. C. Danforth, Evanston, Ill.—p. 563.
3 *Statistical Study of Causes of Abortion. G. D. Royston, St. Louis.—p. 571.
4 Case of Double Obliquely Contracted Pelvis (Roberts), Associated with Acute Lumbar Lordosis Due to Infantile Paralysis in Early Childhood. E. M. Lazard, Los Angeles.—p. 585.
5 *Simple Method of Performing Extraperitoneal Cesarean Section. T. H. Cherry, New York.—p. 590.
6 Case of Cesarean Section in Primipara Followed in Next Pregnancy by Normal Delivery. F. Warner, Columbus, Ohio.—p. 598.
7 Puerperal Septicemia. W. Krusen, Philadelphia.—p. 605.
8 Injuries at Birth, Premature Births and Stillbirths. C. S. Miller, Philadelphia.—p. 615.
9 Obstetric Problems and Coroner's Office. W. S. Wadsworth, Philadelphia.—p. 622.
10 Prenatal Care. F. C. Child, Philadelphia.—p. 631.
11 Maternity Insurance. L. Lehrfeld, Philadelphia.—p. 636.
12 Case of Acute Inversion of Uterus Following Parturition. J. M. Griffin, Warrensburg, N. Y.—p. 639.
13 Ductless Glands in Gynecology. S. W. Bandler, New York.—p. 644.

3. **Study of Causes of Abortion.**—During the four and a half months of Royston's investigation 563 patients were examined. Among these 563 a history of abortion was elicited in 178. Of these, 164 were subjected to detailed study. The 164 patients selected had a grand total of [illegible] pregnancies 348 of which ended in abortion. Criminal abortion was the most common factor in the series. [illegible] women [illegible] to an induced labor. Many of these had th[illegible]ce repeated a number of times.

women had in all 220 pregnancies of which more than half, namely 118 (52.4 per cent.) resulted in abortion. Of these 118, 84 (71.1 per cent.) were frankly acknowledged to have been induced. Comparing the percentage of induced abortions with the abortions in his entire material, Royston arrived at the figure 23.8 per cent. Only twenty (39.2 per cent.) produced living children after having had abortions induced. Only 10 out of the 51 patients had normal genital organs; the remaining 41 were more or less permanently disabled. Among the 164 cases, 46 gave a positive Wassermann and 5 patients with definite histories gave negative reactions after having been treated. Three additional patients showed lesions of the disease, though with negative histories and negative Wassermann reactions. These latter three had taken no specific treatment and were possibly cases of latent syphilis. Excluding these three mentioned, 51 patients were undoubtedly syphilitic. Only 12 of the 51 patients with syphilis gave a history, or showed any lesions of the disease. This means that between one-fourth and one-third of Royston's entire material was syphilitic; it shows that 34 out of 46 (73.9 per cent.) had latent syphilis. Among 51 patients, there were 186 pregnancies, 115 (61.8 per cent.) of which ended in abortion. Before syphilitic infection occurred, 3.8 per cent. aborted as compared with 78 per cent. after infection. In cases in which 48.8 per cent. survivors were born before, only 5.2 per cent. survived after syphilitic infection. Abortions are caused by syphilis much more frequently than the medical public realizes. Royston suggests that any patient who gives a history of one or more previous abortions had best be considered a victim of syphilis until incontrovertible proof to the contrary is obtained. Any other general disease of the mother may produce an abortion provided it is severe enough to affect the fetus or the placenta through changes in the maternal circulation. Of such there were 40 among the 164.

5. **New Method of Extraperitoneal Cesarean Section.**—The procedure employed by Cherry is very similar to the Hirst method. The patient is prepared as for any abdominal section, incision in the median line is made from the symphysis to the umbilicus through skin, fat and fascia of the recti. The muscles are separated by blunt dissection exposing the transversalis fascia and peritoneum. At this stage the edges of the muscle are bluntly dissected off the peritoneum for a slight distance until the deep epigastric vessels are seen, which allows for freer play of the peritoneum. The peritoneum is opened vertically, and the cut edges of the parietal peritoneum are then sutured to the visceral peritoneum in such a manner that an oval area about 5 inches long and 3½ inches wide in the lower uterine segment is left exposed, care being taken to interrupt and tie this continuous suture at several points to prevent it acting as a purse string. This procedure shuts out the general peritoneal cavity. The thin lower uterine segment is then incised in the median line for 4½ inches and the blades of the obstetrical forceps are introduced to the sides of the fetal head, and the child extracted. The placenta and membranes are then delivered. One cubic centimeter of pituitary extract is given intramuscularly at this stage followed immediately by 30 minims of ergotol. The uterine wound is then closed by interrupted chromic gut sutures; a continuous seromuscular suture is made over this line of sutures and the sutured edges of parietal and visceral peritoneum are sutured together. The rest of the wound is closed in the usual manner without drainage.

Arkansas Medical Society Journal, Little Rock

October, XIV, No. 5

14 Acidosis. B. C. Middleton, Texarkana.—p. 97.
15 Postgripal Otitis Media. J. L. Jones, Searcy.—p. 101.
16 Biography of Gallstone. E. D. Holland, Hot Springs.—p. 104.
17 Local Magnesium Sulphate Treatment of Acute Salpingitis. J. W. Butt, Helena.—p. 105.

Bulletin of Johns Hopkins Hospital, Baltimore

October, XXVIII, No. 320

18 *Effects of Serum Therapy in Acute Lobar Pneumonia. A. Bloomfield, Baltimore.—p. 301.
19 *Study of Incidence of Types of Pneumococci Isolated from Acute Lobar Pneumonia and Other Infections. M. C. Clough, Baltimore.—p. 306.
20 Epidemiologic Study of Lobar Pneumonia. V. P. W. Sydenstricker and A. C. Sutton, Baltimore.—p. 312.
21 *Study of Bacteremia in Lobar Pneumonia. A. C. Sutton and C. E. Sevier, Baltimore.—p. 315.
22 Mechanism of Convulsive Phenomena and Allied Symptoms. C. M. Campbell.—p. 318.
23 Fasciolopsinae of China: Study of Two Species from Chekiang Province. N. W. Brown, Baltimore.—p. 322.

18. **Serum Therapy in Acute Lobar Pneumonia.**—Eleven cases are reported on by Bloomfield. They were all instances of frank lobar pneumonia, in which the Type I pneumococcus was demonstrated in the sputum or blood. Nearly all the patients came in with the disease well advanced—thus presenting conditions unfavorable to treatment. In addition to the serum, hydrotherapy, digitalis, and symptomatic measures were employed. The pneumococcus was usually isolated from the sputum by mouse inoculation, and the type determined by agglutination with stock immune serums. The serum was warmed to body temperature and injected intravenously by gravity, at the rate of 2 to 4 c.c. a minute. A preliminary desensitizing dose of 1 to 5 c.c. was given subcutaneously or intravenously. Blood cultures were made before and after treatments, and samples of blood were drawn for the agglutination tests. In five of the cases pneumococci were present in the blood before treatment was begun. In four of these the blood promptly became sterile after the injection of the serum, although in one case there was a terminal sepsis after fourteen days. In another case the one injection reduced the colonies from 900 to 25 per cubic centimeter, but did not prevent death; one patient died without any reapparance of the organisms in the blood. In six cases no organisms were present on admission, and the blood remained sterile throughout. All these patients recovered. The serum is, therefore, clearly an effective agent in sterilizing the blood, and in preventing the development of septicemia. The agglutinins were studied in eight of the cases. There was a striking variation in the titer of various patients' serums even after injection of the same amount of serum. The titer of the patient's serum following therapy bore no constant relation to the outcome of the case. Therefore, it is not a guide to the efficacy of treatment. There was no striking change in the clinical course of the cases which could clearly be attributed to the serum. This series throws little light on the curative value of the serum.

19. **Types of Pneumococci Isolated from Acute Lobar Pneumonia.**—In all, 121 strains of pneumococci were isolated by Clough and the groups determined. The percentage incidence of Groups I (35.2), III (14.8) and IV (25.9) in the lobar pneumonias in adults corresponds very closely to figures obtained at the Rockefeller Institute in their pneumonias. The striking feature in this series is the relatively very low percentage of typical Group II pneumococci (5.5) and the correspondingly high percentage of atypical Group II strains (16.7). The small series (13) of lobar pneumonias in children showed a slightly lower incidence of Groups I (30.8) and III (0.0) with a correspondingly higher incidence of Groups IV (30.8) and Atypical II (23.1) as compared with the lobar pneumonias of adults. If, however, the empyemas in children are added to the pneumonias and the percentage of these sums calculated, the incidence of Groups I and II becomes slightly higher than in the pneumonias in adults. This discrepancy is explained in two ways. In the first place, only lung puncture material was used for the cultures in this series, while most of the cultures obtained by the other authors were from sputum. In the second place, all the cases in the series were lobar pneumonias, while other authors included bronchopneumonias with lobar pneumonias in their statistics. Of the atypical Group II pneumococci isolated from lobar pneumonias (23.1) in children and from empyemas (14.3) three out of the six belonged to Subgroup II B.

A Group I pneumococcus was isolated from one out of ten cases of bronchopneumonia. The other cases were due to Types III, IV and Atypical II in about equal percentages. An interesting case in which a Group I was isolated from an otitis media and from mouth sputum gave a history of a mild pneumonia following "grippe" nine months previously, and presumably had been a carrier throughout this period. The total mortality of the series was high (50 per cent.). In all of eight cases due to the pneumococcus mucosus the patients died. The mortality of the Group IV cases was relatively very high (57.2 per cent.). The explanation is probably the greater average age of the cases of this group (40.5 years), and the very high percentage of associated diseases in these cases (71.4 per cent.), as compared with 20.3 per cent., 33.3 per cent., and 25 per cent. in the fixed types. Marked alcoholism is included as an associated disease on account of the large part which it seems to play in the incidence and mortality of pneumonia. The same explanation is offered for the mortality of the pneumonias due to Atypical II strains (60 per cent.), which is higher than one would expect with organisms which are usually relatively avirulent. Several terminal pneumonias and one postoperative pneumonia were included in this study, all of which were due to Type IV or Atypical II organisms.

21. **Bacteremia in Lobar Pneumonia.**—Sutton and Sevier endeavored to determine the course of the sepsis in cases with positive blood cultures, to see whether this varied according to the type of infecting organism, and finally to determine the relation of the bacteremia to prognosis. Of the entire series of sixty-six cases only three patients died whose blood cultures were persistently negative. No patient recovered who had, at any time of the disease, over 5 colonies per cubic centimeter of blood, whether he received specific therapy or not, with the exception of one patient who had 20 colonies per cubic centimeter on admission, and a severe alcoholic delirium. This patient, however, received a serum within a few hours of admission, and subsequent doses until after his temperature had become normal. All the deaths excepting that of the patient showing a negative blood culture, occurred in the four months between December 8 and April 8, although sixteen cases occurred before or after this period. This is also the period within which all the positive cultures were obtained. Do the fixed types vary in virulence throughout the year, or does the severity of the initial exposure during the period of maximal changes in weather predispose to the type of pneumonia that runs its course with a septicemia? In general, the incidence of septicemia runs parallel with the mortality. If the cases with a transient sepsis, having only an occasional colony early in the disease, are omitted, the percentages of positive blood cultures and mortality are practically identical. As regards prognosis, the authors have found blood cultures the most valuable aid. Of the patients with persistently negative blood cultures 93 per cent. recovered without any complications. Of the patients with positive cultures, all with over 5 colonies per cubic centimeter at any period of the disease died, except one with 20 colonies on admission, who received serum therapy.

Boston Medical and Surgical Journal

October 18, CLXXVII, No. 16

24 Progress in Tuberculosis; A Collective Abstract of Important Articles Published During 1916. J. B. Hawes, 2d, and P. C. Bartlett, Boston.—p. 537.
25 Rationale of Neurasthenia and of Disturbances of Arterial Tension. G. E. Barnes, Herkimer, N. Y.—p. 543.
26 Intestinal Stasis. M. H. Wentworth, Concord.—p. 548.
27 Cases of Dislocations of Shoulder, with Complications. F. F. Henderson, Boston.—p. 550.
28 Etiology and Pathology of Perforating Gastric and Duodenal Ulcers. F. W. White, Boston.—p. 555.
29 *Use of Emanuel-Cutting Mastiche Test in Examining Spinal Fluid from Psychopathic Subjects. C. E. Smith and L. G. Lowrey, Boston.—p. 557.
30 Botulismus; Report of Two Fatal Cases. R. Bine, San Francisco.—p. 559.
31 Long Umbilical Cord, Causing Three Loops Around Neck. M. J. Konikow, Boston.—p. 560.
32 Thoracopagus; Unusual Cause of Dystocia; Report of Case. S. Cline, Boston.—p. 561.

29. **Emanuel-Cutting Mastiche Test on Spinal Fluid.**—The authors tested the fluids from 268 patients. Of these, seventy-four fall into the general group of syphilis of the nervous system, the majority of the remainder being nonsyphilitic psychopaths and nonpsychopaths, with the addition of three cases of acute meningitis. In all cases the following tests were made: Wassermann test in blood and spinal fluid; albumin, globulin, cell count and colloidal gold tests, in spinal fluid. Smith and Lowrey are of the opinion that the mastiche test, as modified by Cutting, has a distinct place in the clinical laboratory. Because of the ease and accuracy of examination it may well be used to determine in which cases the more complicated gold test should be made. Their experience indicates that the test does not differentiate between syphilis and acute meningitis; hence the chances are that the reactions in tubercular meningitis and tumors will not be differential. It has a place in the examination of spinal fluids, especially where large numbers of spinal fluids are examined. In all cases showing clouding with mastiche, a gold reaction should be performed as a final check.

Cleveland Medical Journal

October, XVI, No. 10

33 Treatment of Tuberculosis of Spine. G. I. Bauman, Cleveland.—p. 657.
34 Treatment of Syphilis in Army. H. N. Cole, Cleveland.—p. 662.
35 New Apparatus for Collection of Urine in Female Infants. H. O. Ruh, Cleveland.—p. 666.
36 Management and Technic of Spinal Cord Operations. M. E. Blahd, Cleveland.—p. 668.
37 Persian System of Water Abuse. R. E. Hoffman, Meshed, Persia.—p. 672.

Journal of Biological Chemistry, Baltimore

October, XXXII, No. 1

38 Creatinuria in Women. M. S. Rose, New York.—p. 1.
39 Metabolism of Fats. Utilization of Palmitic Acid, Glyceryl Palmitate and Ethyl Palmitate by Dog. J. F. Lyman, New Haven, Conn.—p. 7.
40 Id Effect of Feeding Free Palmitic Acid, Glyceryl Palmitate, and Ethyl Palmitate on Depot Fat in White Rat. J. F. Lyman, New Haven, Conn.—p. 13.
41 Determination of Fecal Indole. O. Bergeim, Urbana, Ill.—p. 17.
42 Some Aspects of Temperature Coefficients of Life Processes. W. J. V. Osterhout, Cambridge, Mass.—p. 23.
43 *Biologic Analysis of Pellagra Producing Diets. Dietary Properties of Mixtures of Maize Kernel and Bean. E. V. McCollum and and N. Simmonds, Madison, Wis.—p. 29.
44 *Uric Acid Content of Maternal and Fetal Blood. J. M. Slemons and L. J. Bogert, New Haven, Conn.—p. 63.
45 *Schneyer Method for Determination of Lactic Acid in Urine. M. E. Maver, Chicago.—p. 71.
46 *Studies of Food Utilization. Utilization of Carbohydrate on Relatively High and Low Cereal Diets. Z. Zentmire and C. C. Fowler, Ames, Iowa.—p. 77.
47 Methods for Approximating Relative Toxicity of Cottonseed Products. F. E. Carruth, West Raleigh, N. C.—p. 87.
48 *Nutritive Value of Soy Bean. A. L. Daniels and N. B. Nichols, Madison, Wis.—p. 91.
49 Influence of Food and Temperature on Duration of Life. J. Loeb and J. H. Northrop, New York.—p. 103.
50 Effect of Prolongation of Period of Growth on Total Duration of Life. J. H. Northrop, New York.—p. 123.
51 *Existence of Gastric Lipase. M. Hull and R. W. Keeton, Chicago.—p. 127.

43. **Pellagra Producing Diets.**—According to McCollum and Simmonds two practices make for safety in human nutrition in those districts where the water is low in sodium and calcium. These are, first, the consumption of milk as a regular article of diet, and second, the use of the leaves of plants as human food. Milk is always high in calcium and, as a rule, contains a far greater amount of sodium chlorid than do any of the seeds. The same is true of the leaves of plants. It is highly probable that meats do not make good the mineral deficiencies of a diet derived principally from seeds. The authors emphasize the importance of using milk as a regular constituent of the human diet and also the great benefit which would result from a more extensive use of the leaves of plants as a stable article of the diet. There is grave danger in deriving nearly the whole food supply from the seeds of plants.

44. **Uric Acid in Blood.**—Slemons and Bogert found that the uric acid content of the blood during uncomplicated pregnancy falls within the limits accepted as normal at other times (2 to 5 mg. per 100 c.c. of blood). Larger values were found in cases of syphilis, pyelitis and the toxemias of pregnancy. At the conclusion of labor higher values usually prevail in primiparous than in multiparous women. This may be explained by the longer duration and the more energetic character of the labor in the case of the first birth. In several cases an increased uric acid content of the blood after labor was demonstrated. Equivalent values for the uric acid in the blood of mother and fetus indicate that uric acid passes through the placenta by diffusion. As a rule, the uric

acid of the blood is notably increased in cases of eclampsia and also of nephritis during pregnancy; consequently, these clinical complications may not be distinguished by estimation of the blood uric acid.

45. **Lactic Acid in Urine.**—Maver maintains that while the method of Schneyer is of unquestionable value in indicating the excretion of substances belonging to a group capable of yielding carbon monoxid, it cannot be applied to the quantitative determination of lactic acid in the urine.

46. **Utilization of Carbohydrate on High and Low Cereal Diets.**—Experiments reported on by Zentmire and Fowler show that the utilization of total carbohydrates of a diet consisting largely of cereal is above 99 per cent. The carbohydrate is as completely utilized with one quantity as another of cereal in the diet, even when the cereal is taken in larger amounts than are found in the average dietary. Assuming that sucrose and lactose are completely digested and absorbed, the utilization of the cereal carbohydrate is still high (97.7 to 99.0 per cent.). Assuming that sucrose is completely utilized, the starch of the starch diets is utilized to the extent of over 98 per cent. Monotony and unpalatability of diet have little or no effect on the ultimate utilization.

48. **Nutritive Value of Soy Bean.**—An economic consideration of the yellow soy bean leads to the conclusion that it is one of the most valuable of the leguminous seeds. It contains a high percentage of a physiologically good protein, a considerable amount of energy yielding material in the form of fat and carbohydrate, and a fairly liberal supply of the fat-soluble food accessory, as well as of the water-soluble growth determinant. The animals fed rations containing 15.6 and 18.7 per cent. of protein obtained solely from the soy bean have grown normally and in the latter case have produced successive litters of young, which in turn have reproduced, is sufficient evidence that the protein of the soy bean fulfills all physiologic requirements. The protein of the soy bean appears to be quite as valuable as the casein of milk. In order to make the soy bean a more nearly complete food, suitable inorganic material, consisting principally of sodium chlorid and calcium compounds, needs to be added.

51. **Existence of Gastric Lipase.**—The occurrence of gastric lipase was studied by Hull and Keeton in pure juice obtained from dogs with Pawlow stomachs and those with pylorus ligated. The secretion was excited by gastrin bodies and food. It was found that the fasting and acid-free juice always contains an appreciable concentration of lipase. The lipase is quite sensitive to acid and alkali, being almost completely destroyed by a fifteen minute exposure to 0.2 per cent. hydrochloric acid. The enzyme may be recovered from the stomach showing low acid secretion by neutralizing the juice immediately; and from stomachs in high secretory activity, if the acid be reduced by the addition of protein, such as peptone. In a series of trials 1 c.c. of fasting juice gave a fat splitting of 28.2 per cent. by the Volhard method and 22.05 per cent. by the Stade modification. The concentration of the enzyme in the gastric juice is five or six times that in the succus entericus and the blood serum. The view that the lipase is a true gastric secretory product is discussed and favored. The probable practical importance of the lipase in stomach digestion is emphasized.

Indiana State Medical Association Journal, Fort Wayne

October, X, No. 10

52 Coagulen (Kocher-Fonio); Successful Experiences in Eight Cases. H. K. Bonn, Indianapolis.—p. 385.
53 Cataract and Its Management. W. F. Hughes, Indianapolis.—p. 390.

Journal of Parasitology, Urbana, Ill.

September, IV, No. 1

54 Structure and Classification of North American Parasitic Worms. H. B. Ward, Urbana.—p. 1.
55 Sporozoon Parasites of Fishes of Woods Hole and Vicinity. On Chloromyxum Clupeidae of Clupea Harengus (Young), Pomolobus Pseudoharengus (Young), and P. Aestivalis (Young). C. W. Hahn.—p. 13.
56 *Endameba Buccalis. Its Reactions and Food Taking. N. Nowlin, Lawrence, Kan.—p. 21.
57 Central Nervous System of Parasitic Isopod, Grapsicephon. W. A. Hilton, Claremont, Calif.—p. 25.
58 Value of Nitrobenzol as Parasiticide with Its Use in Collecting External Parasites. W. L. Chandler.—p. 27.
59 Morphologic Study of Bothriocephalid Cestodes from Fishes. A. R. Cooper, Urbana.—p. 33.
60 Systematic Position of Two Known Species of Gregarines. M. W. Kamm, Urbana.—p. 40.
61 First Case of Leishmaniosis Cutanea in Venezuela. J. Iturbe and E. Gonzalez.—p. 444.

56. **Endameba Buccalis.**—The material for this present paper was collected by Nowlin from a single host and a single point of infection, an upper premolar tooth. Nowlin concludes from observations that *Endameba buccalis* absorbes its food mainly, taking in by osmosis the fluids of leukocytes or other mediums on which it rests, stores these colloidal substances in vacuoles, and by secretion of its own enzymes assimilates these as needed. This method of food getting by absorption would explain the shrinkage of gums where *Endameba buccalis* is present. There is abundant evidence that they draw supplies by applying themselves to the surface of tissues and by crowding between them.

Kansas Medical Society Journal, Topeka

October, XVII, No. 10

62 Treatment of War Wounds and Sepsis. A. B. Jeffrey, Topeka.—p. 265.
63 Cholecystectomy vs. Cholecystostomy. G. M. Gray, Kansas City.—p. 274.
64 Action and Use of Sodium Chlorid. J. S. Sutcliff, Iola.—p. 277.
65 County Hospital. J. L. Morehead, Neodesha.—p. 279.

Medical Record, New York

October 20, XCII, No. 16

66 Army Medical Museums. R. W. Shufeldt, Washington, D. C.—p. 663.
67 Alcohol and Therapeutics. E. H. Williams, Los Angeles.—p. 666.
68 Nasal Insufflations in Diagnosis, Prognosis and Treatment of Tuberculosis. O. Paget, Freemantle, West Australia.—p. 668.
69 Two Cases of Multiple Keloids. J. E. Lopez-Silvero, Havana, Cuba.—p. 673.
70 Mastic Reaction on Cerebrospinal Fluid. E. R. Smith, Ann Arbor, Mich.—p. 675.
71 Wassermann Reaction and Pulmonary Tuberculosis. J. S. Ford, Loomis.—p. 678.
72 Operations for Harelip and Cleft Palate. W. C. Gewin, Birmingham, Ala.—p. 679.
73 Cosmetically Perfect, Bloodless Circumcision. H. J. Millstone, Chicago.—p. 680.
74 Cannula for Use with Carrel Method. E. E. Endicott, Jackson, Calif.—p. 682.

Mental Hygiene, Concord, N. H.

July, I, No. 3

75 Mobilizing Brains of Nation. S. Paton, Princeton, N. J.—p. 334.
76 *Care of Disabled Returned Soldiers. P. Bailey, New York.—p. 345.
77 Use of Institutions for Insane as Military Hospitals. T. W. Salmon, New York.—p. 354.
78 Broader Psychiatry and War. H. M. Adler, Chicago.—p. 364.
79 *Relation of Psychology to Military Activities. R. M. Yerkes, Boston.—p. 371.
80 State Hospital and War. W. A. White, Washington, D. C.—p. 377.
81 *Some of Nervous and Mental Conditions Arising in Present War. E. M. Auer, France.—p. 383.
82 *Problem of Mental Disease in Canadian Army. C. B. Farrar, Ottawa.—p. 389.
83 Some Experiences in German Red Cross. C. A. Neymann, Baltimore.—p. 392.
84 Effects of High Explosives on Central Nervous System. E. E. Southard, Boston.—p. 397.
85 Mental Disease, Suicides and Homicides in United States Army and Navy, 1897-1915. E. M. Furbush.—p. 406.
86 Neuropsychiatry and War. M. W. Brown and F. E. Williams.—p. 409.

76. **Care of Disabled Returned Soldiers.**—In addition to general medical and surgical hospitals, Bailey's plans include convalescent homes for those enfeebled rather than disabled, sanatorium for consumptives and colonies of various kinds at which outdoor work can be taken up little by little. Vocational training is an important part of the scheme, especially for those whose disability forces them to find a different occupation than the one they had before entering the army. This feature involves questions concerning the soldier's personality, and also has associated with it such perplexing questions as the rating of pensions, attitude of trade unions, state versus federal supervision, etc. The nervous casualties require a high degree of differentiation in their treatment.

The insane should be carefully segregated from those whose mental disturbances are susceptible of more prompt recovery; the hysterics should be kept by themselves, and special education centers will be found necessary for the care of the disorders of speech and hearing so frequent in this war. The final feature in Bailey's plan is the creation of federal and state boards of reemployment, which shall meet the returned soldier at all points of discharge and facilitate his return to self-support and independence in the civil community.

79. **Psychology and Military Activities.**—Yerkes suggests that psychologists can render service to the nation by discovering and indicating in practical ways the relations of human characteristics to special tasks.

81. **Nervous Conditions Arising in Present War.**—The large number of cases of mental disorders, functional and organic, makes necessary the presence of a physician trained to make thorough studies of and successfully treat mental patients. This requires a patience and skill obtained only through a thorough understanding of the conditions resulting from fatigue, worry, fright, shock, etc. In the organic cases, in which foreign bodies, such as shrapnel, have penetrated the nervous tissue, the roentgen ray has proved an invaluable asset in localization, for not infrequently, due to more extensive involvement resultant from hemorrhage and destruction, the neurologic symptoms do not correspond exactly with the site of the foreign body. For the more careful consideration of mental cases in the Base Hospitals, Auer says, huts should be assigned to a neuropsychiatric service, where the functional nervous and mental conditions can receive proper treatment in the way of complete rest, isolation, dietary measures, and such other treatment as may be required. The cases of organic injury to the nervous system should also be received in a special hut in the surgical division, where the surgeon and the neurologist can more competently care for the wounded and make a more thorough study of the findings.

82. **Mental Disease in Canadian Army.**—Of the total number of soldiers invalided to Canada, the proportion of nervous and mental cases has been fairly constant at 10 per cent., classified as follows: neurotic reactions, 58 per cent.; mental diseases and defect, 16 per cent.; head injuries, 14 per cent.; epilepsy and epileptoid, 8 per cent.; organic diseases of the central nervous system, 4 per cent. In the general policy of caring for the war neuroses, Farrar says, it has been demonstrated over and over again, that patients while under treatment should be shifted as little as possible from one institution to another. It is also as a rule, not well to have the patient in the vicinity of his home, and home visits are certainly contraindicated in the severer neuroses. The conscious will and purpose to get well are often difficult to establish and all opposing factors must be kept in mind.

Military Surgeon, Washington, D. C.

October, XLI, No. 4

87 Sanitation in War. T. H. Goodwin.—p. 377.

88 Bath, Disinfection Trains and Field Laundries of Austro-Hungarian Army. J. H. Ford.—p. 388.

89 Guide to Facilitate Establishment and Administration of Medical Group of Ports of Embarkation in Time of War or Threatened Hostilities Involving Oversea Operations. E. W. Rich.—p. 393.

90 Experiences and Suggestions on Automobile Ambulance Service of Modern Army in Field. S. Thorn.—p. 415.

91 Experiences with Russian Army of Caucasus in Northern Persia. T. L. Hazlett.—p. 445.

92 Place of Orthopedic Surgery in Treatment of War Casualties. J. E. Goldthwait.—p. 450.

93 Statistical Lessons of Crimean War. F. H. Garrison.—p. 457.

Missouri State Medical Association Journal, St. Louis

October, XIV, No. 10

94 Correction of Deformity Due to Complete Loss of Nose and Most of Alveolus and Hard Plate. J. F. Binnie and W. T. Stark, Kansas City.—p. 415.

95 Milk Borne Typhoid Outbreak in Children. S. T. Lipsitz, St. Louis.—p. 418.

96 Diagnosis and Treatment of Certain Subacute and Chronic Joint Conditions. F. D. Dickson, Kansas City.—p. 421.

97 Tubo-Ovarian Infections. H. S. McKay, St. Louis.—p. 423.

98 Treatment of Dacryocystitis in Infants. J. Green, Jr., St. Louis.—p. 427.

99 Need for More Thorough Examination into Family History and More Exhaustive Search for Disease in Applicants for Admission to Schools for Blind. J. W. Charles and H. D. Lamb, St. Louis.—p. 430.

100 Physiologic Therapeutics. A. C. Ames, Mountain Grove.—p. 432.

101 Pulmonary Tuberculosis. H. S. O'Donnell, St. Louis.—p. 434.

102 Fallacy of Chiropractic Claims. J. D. Seba, Bland.—p. 437.

New York Medical Journal

October 20, CVI, No. 16

103 Mental Condition of Female Juvenile Delinquents. J. H. W. Rhein, Philadelphia.—p. 725.

104 Etiologic Factor in Gastro Enteroptosis and Its Clinical Significance. I. J. Clemons, Los Angeles.—p. 728.

105 Venereal Prophylaxis. H. J. Millstone, Chicago.—p. 730.

106 Clinical Experience with Corpus Luteum Organotherapy. W. T. Dannreuther, New York.—p. 731.

107 Surgical Treatment of Gastric Ulcer. W. F. Fowler, Rochester.—p. 735.

108 Treatment of Pulmonary Hemorrhage. D. C. Martin, New York.—p. 738.

109 Wight Fracture Clamp. J. S. Wight, New York.—p. 741.

110 Relation of Hemorrhoidal Disease to Health Balance. W. M. Beach, Pittsburgh.—p. 742.

111 Colon Bacillus Pyelitis. J. Kaufman, New York.—p. 743.

New York State Journal of Medicine

October, XVII, No. 10

112 Choice of Operation for Retrodisplacement. E. E. Montgomery, Philadelphia.—p. 437.

113 Conservative Surgery of Fallopian Tubes. H. P. Jack, Hornell.—p. 443.

114 Gynecologic History. G. G. Ward, Jr., New York.—p. 445.

115 Recent Developments in Gynecology that Every Practitioner Should Know. W. W. Chipman, Montreal, Canada.—p. 453.

116 After Care in Abdominal Operations. H. W. Jones, Utica.—p. 458.

117 Surgical Hemostasis of Female Pelvis—Stereoroentgenographic Study. H. D. Furniss and W. H. Meyer, New York.—p. 462.

118 Case of Antepartum Mammary Hyperemia Due to Unrecognized Malignant Disease. G. W. Kosmak, New York.—p. 464.

119 Necessity for Routine Rectal Examinations in Obscure Pelvic Pain. D. H. Murray, Syracuse.—p. 466.

120 Some of the General Skin Diseases with Ocular Manifestations. W. B. Weidler, New York.—p. 468.

121 Mass Volunteering by Medical Profession. F. T. van Beuren, Jr., New York.—p. 476.

Southern Medical Journal, Birmingham, Ala.

October, X, No. 10

122 Treatment of Tabes. L. M. Gaines, Atlanta, Ga.—p. 777.

123 *Importance of Time in Treatment of Tuberculosis. W. R. Kirk, Hendersonville, N. C.—p. 781.

124 Wassermann Reaction. G. E. Henson, Jacksonville, Fla.—p. 784.

125 Advances in Public Health Work in Oklahoma During 1915. J. W. Duke, Guthrie, Okla.—p. 788.

126 Prenatal Uncinaria Infection. H. H. Howard, New York.—p. 793.

127 Small Outbreak of Typhoid Attributed to Water. M. G. Perrow, Lynchburg, Va.—p. 795.

128 Gynecologic Origin of Nervous Manifestations. W. F. Shallenberger, Atlanta, Ga.—p. 797.

129 Indications for Decompression Operation in Fracture of Base. S. R. Benedict, Birmingham.—p. 799.

130 *Lump in Breast. E. B. Claybrook, Cumberland, Md.—p. 802.

131 What European War Has Taught Us in Treatment of Wounds. W. L. Brown, El Paso, Texas.—p. 809.

132 Some Factors in Railway Sanitation. O. Dowling, Shreveport, La.—p. 811.

133 History of Origin of Red Cross. H. L. Large, Rocky Mount, N. C.—p. 814.

134 Adenoids and Tonsils. L. R. H. Gantt, Spartanburg, S. C.—p. 818.

135 Research Function of Medical College. C. C. Bass, New Orleans.—p. 823.

123 and 130. Abstracted in THE JOURNAL, Dec. 23, 1916, pp. 1966 and 1967.

Tennessee State Medical Association Journal, Nashville

October, X, No. 6

136 Insanities and Their Relation to Practice of Medicine. J. J. Waller, Oliver Springs.—p. 221.

137 Operative Treatment for Gangrene of Feet with Special Reference to Blockage of Venous Return of Two Cases. J. B. Haskins, Chattanooga.—p. 226.

138 *Hay Fever; New Surgical Treatment. T. P. Miller, Knoxville.—p. 231.

139 Practical Electrotherapeutics. J. M. King, Nashville.—p. 236.

140 Some Diseased Conditions of Eye, Secondary to Infection in Other Parts of Body. O. Dulaney, Dyersburg.—p. 240.

141 Gastric Ulcer and Its Differentiation. J. A. Witherspoon, Nashville.—p. 244.

138. **Surgical Treatment for Hay Fever.**—Miller says that there is a condition in all cases of hay fever of highly sen-

sitized parts of the mucous membrane supplied by the olfactory nerve. This is caused in all cases he has seen by a malformation of the nose. This malformation can either be an enlarged superior turbinate, a deviated septum or a very close nose. At any rate, there is a pressure between the superior turbinates and the septum, causing a highly inflamed and sensitized condition of the mucous membrane at the ramifications of the olfactory nerve. These are the patients who have hay fever. Miller relieves this pressure by removing the superior turbinate or by the proper application of trichloracetic acid.

Texas State Journal of Medicine, Fort Worth

October, XIII, No. 6

142 Treatment of Carcinoma of Mouth. V. P. Blair, St. Louis.—p. 205.
143 Sphenoid Sinus Problem. E. M. Sykes, San Antonio.—p. 209.
144 Systematic Routine Thoroughness in Mastoid Surgery. L. H. Lanier, Texarkana.—p. 211.
145 Some of the Conditions Affecting Breast Fed Babies. B. E. Greer, Dallas.—p. 213.
146 Danger Signals for Medical Examiners. J. H. Florence, Houston.—p. 215.
147 Treatment of Acute Infections of Nose and Accessory Sinuses. J. H. Foster, Houston.—p. 217.

FOREIGN

Titles marked with an asterisk (*) are abstracted below. Single case reports and trials of new drugs are usually omitted.

Lancet, London

October 6, II, No. 4910

1 *Pathology, Diagnosis and Treatment of Absolute Hysterical Deafness in Soldiers. A. F. Hurst and E. A. Peters.—p. 517.
2 *Reactions to Human and Bovine Tuberculin Applied by Method of Von Pirquet in Cases of Tuberculous Disease of Bones and Joints. H. J. Gauvain.—p. 519.
3 *New Dietetic Treatment of Diabetes. P. J. Cammidge.—p. 522.
4 *Local Treatment of Meningococcus Carriers with Antiseptics. P. Fildes and P. B. Wallis.—p. 527.
5 *Closure of War Wounds in Home Hospitals. J. Phillips.—p. 528.
6 Growth of Anaerobic Bacilli in Fluid Media Under Apparently Aerobic Conditions. S. R. Douglas, A. Fleming and L. Colebrook.—p. 530.
7 *Unusual Complication of Laparotomy for Gunshot Wound. W. H. Johnston.—p. 533.
8 Inoculation Agglutinins. I. W. Hall and I. Hiles.—p. 534.
9 Case of Vincent's Infection Involving Mouth, Eyes and Penis. F. B. Bowman.—p. 536.
10 Case of Malaria Contracted in England. R. L. Wilcox.—p. 536.

1. **Hysterical Deafness in Soldiers.**—Hurst and Peters are convinced from their experience that absolute deafness associated with normal vestibular reactions should be regarded as hysterical, and when simple encouragement fails, as will generally be the case if the patient is not also dumb, an "operation" should be performed after the patient has been made to feel quite confident that it will restore his hearing. This "operation" is described as having been applied in two cases of absolute hysterical deafness without mutism, and in one of them mutism was originally present, but spontaneous recovery had occurred some months earlier in which all treatment had failed. The first patient was given enough ether to make him excited, and two small cuts were then made behind his ear; a hammer was banged on a sheet of iron during the "operation," and the moment after the incision had been made the patient jumped off the table with his hearing restored. The other patient was unwilling at first to undergo an operation, but finally consented, as he was naturally impressed by the recovery of the first patient, who was in the same ward and had been deaf for a much longer period. The same "operation" was performed and complete recovery occurred in exactly the same way.

2. **Reactions to Human and Bovine Tuberculin.**—Gauvain applied the Pirquet test to eighty cases of tuberculous bones or joints. In order to avoid any risk of unconscious bias he made the inoculations and recorded their results without knowledge of bacteriologic reports as to the type of bacillus found. The tuberculins employed were Koch's "old tuberculin," prepared from the "human" type of bacilli, and his tuberculin prepared in the identical way from bacilli of bovine origin. The tuberculins were applied to suitable skin scarifications in dilutions of 1/64, 1/16, 1/4, and in full strength, each in approximately equal bulk and controlled by inoculation of a scarification with the same quantity of sterile normal saline solution. The final result of Gauvain's investigation may be stated briefly as follows: 1. Local reactions to inoculations of both human and bovine tuberculin were invariably present in all patients from whose pus tubercle bacilli had been isolated. 2. Though reactions were invariably present, the degree of reaction varied within wide limits. 3. Weakly and cachectic patients usually reacted feebly, quite irrespective of differences in the severity of their local lesions. 4. Strong and vigorous patients exhibited wide differences in the degree of their reactions, irrespective of differences in the extent or the severity of their local lesions. 5. The quantitative Pirquet test was found to be of value in forming an estimate of the severity of the infection, and was of little prognostic value. 6. It was impossible to differentiate the type of tubercle bacillus with which the patient was attacked by the nature of the reaction to the tuberculin employed.

3. **New Dietetic Treatment of Diabetes.**—Cammidge points out that at present our only reliable means of combating the disease is management of the diet, but in order to obtain the best results and actually halt the diabetic process it is necessary that it should be carried out with knowledge and as nice discrimination as the selection and prescription of a drug. Time and care devoted to the chemical aspect of each case render the task easier, and would prevent the empirical employment of one routine method, so saving many patients from unnecessary hardships and inconveniences. It is not enough to consider only the glycosuria, or even the end-products of metabolism in the urine, the information to be obtained from analysis of the blood and feces should also be taken into account, and Cammidge thinks that the time is coming, and will come shortly, when a physician who attempts to treat a case of diabetes guided only by examination of the urine for sugar will be held as guilty of negligence as the present-day surgeon would be who failed to employ roentgenography when treating an injury of the bones or joints.

4. **Meningococcus Carriers Treated with Antiseptics.**—Owing to the measures adopted in the British Navy to limit the spread of cerebrospinal fever a large number of carriers were detected in the Portsmouth depot and isolated in a special camp. It then became necessary to attempt to sterilize the throats of these men, and, although from analogy with other diseases the local application of antiseptics appeared likely to be unprofitable, it was thought desirable to give these a trial. If the antiseptic did not destroy the cocci in the throat, it was possible that it might prevent the cross infection from one man to another. The antiseptics most thoroughly tested were chloramin-T and acriflavine. Other antiseptics were boric acid, phenol, magnesium hypochlorite, aqueous solution of formaldehyd gas, potassium permanganate, guaiacol and several others. In addition to these, Fildes and Wallis administered to a few men a placebo in the form of tablets of formaldehyd solution. Chloramin-T was applied in two different ways: (*a*) In an inhaling chamber: A 5 per cent. solution of chloramin-T was used in the reservoir of the nebulizer; this strength was found to give as powerful an atmosphere of chlorin as was pleasant. The men remained in the chamber for about fifteen minutes per diem. (*b*) In a nasopharyngeal spray: The chloramin-T (2 per cent.) thus came copiously into contact with the whole nasopharynx and often dripped from the anterior nares. This treatment was applied once a day. Acriflavine in a strength of 1 in 500 in salt solution, was applied daily with the authors' nasopharyngeal spray. The other antiseptics mentioned were all applied with a nasal spray until the drug could be felt in the nasopharynx. The strength of boric acid was 1 dram to the pint, of phenol 1 in 200, of liquor formaldehyd 1 in 200, and of potassium permanganate 1 in 1,000. Looking at the results as a whole, Fildes and Wallis conclude that one third of the men recover spontaneously, and that none of the methods of treatment tested has any conspicuous merit, nor has one any obvious advantage over another. This result is what might be expected from analogy with work on diphtheria carriers.

5. **Closure of War Wounds in Home Hospitals.**—The method which experience has led Phillips to adopt includes something of the bismuth iodoform petrolatum paste method along with the sodium hypochlorite treatment. Where pus is pocketing in the track of a through-and-through wound, or beneath or between two adjacent muscles, or where loose bone fragments or other devitalized or foreign bodies are present, an anesthetic must be given and the wound cleansed and laid freely open. The skin incision whenever possible should extend the whole length of the wound. The ideal Carrel wound is a basin which can easily be kept full to the brim with the hypochlorite solution. Every third or fourth day a platinum loopful of the discharge is taken from the wound surface wherever it looks least healthy and examined bacteriologically. Phillips makes it a rule not to attempt to close a wound until two reports of an average of less than three organisms per field have been returned.

Wound Closure: The skin around the surgically clean wound is cleansed, the edges of the wound are trimmed, the granulations are thoroughly curetted, the skin edges are undercut. Any definitely bleeding vessels are tied (oozing does not matter), the whole wound area is swabbed with methylated spirit and a little bismuth iodoform petrolatum paste is scrubbed into the raw surface with the gloved fingers. Wherever possible any raw muscle surface is closed by bringing together the edges of the deep fascia (exposed by the under cutting) with a running stitch of stout catgut. Thick silk sutures (No. 5 pedicle silk boiled and soaked for forty-eight hours in tincture of iodin) are passed through the skin and the deep layers of the wound at intervals of about ¾ inch and tied tightly so that no "dead cavity" is left. In cases in which there is tension on the part, the most useful stitch is a combination of a mattress with a simple surgical stitch. A continuous catgut stitch is used to complete the coaptation of the skin edges. The skin is cleaned and smeared over with Moynihan's cream (a mixture consisting of as much bismuth carbonate and 1:1,000 watery solution of mercuric iodid as will make a thick paste) and a simple dry gauze and wool dressing applied. The dressing is not touched for fourteen days. It is then removed, any discharge is wiped away and Moynihan's cream and another dry dressing are applied. At the second dressing a week later the stitches are removed, and never before.

Of ten cases so treated Phillips finds that seven or eight will have healed practically by first intention, one or two will have gaped a bit at one part, leaving a superficial granulating area, and the tenth—practically always one where there has been loss of tissue and consequent tension on the stitches—will be a failure, at any rate in large part, and will require to be done again, or perhaps skin grafting will be necessary.

7. **Laparotomy for Gunshot Wound.**—In Johnston's case of gunshot wound of the abdomen, with perforations of intestine, which were sutured, diffuse purulent peritonitis occurred as a complication, consequent on rupture of an abscess in the anterior abdominal wall. Treatment by the hypochlorite method was carried out, and resulted in recovery.

Medical Journal of Australia, Sydney

September 22, II, No. 12 ..

11 Arneth Index in Eastern Australia. E. M. Sweet.—p. 243.
12 Medical Work Seen in *Australian* Military Hospitals. W. Summons.—p. 244.
13 *Early Symptoms Following Infection by Schistosomum Mansoni. F. B. Lawton.—p. 247.
14 Case of Ruptured Diverticulum with Fatal General Peritonitis. W. R. Groves.—p. 251.

13. **Symptoms Following Infection by Schistosomum Mansoni.**—In August and September, 1916, twenty-four patients were admitted to an Australian general hospital in Cairo suffering from some or all of the following symptoms: abdominal pain, enlarged and tender liver and spleen, pyrexia, bronchitis, urticaria and diarrhea. All the patients were Australians, who had not traveled before enlistment. At first it was not clear what was the matter with these men, and blood cultures were made and other investigations were carried out with negative results, but the blood picture afforded the key. In every case a striking eosinophilia (5-55 per cent.) was present. This led to prolonged examination of the stools for parasites, and resulted in the discovery of the lateral spined ova of *Schistosomum mansoni.* The ova were found ultimately in the stools of all. The ova were scarce at this stage of the disease, as presumably the majority of the paired adult worms had not yet found a suitable home in the veins draining the rectum. All of these patients had been in camp at Tel-el-Kebir during the three months preceding the onset of symptoms, and it was there, Lawton says, that the infection apparently was contracted.

Practitioner, London

October, XCIX, No. 4

15 Moral Imbecility. C. Mercier.—p. 301.
16 Fifty Cases of Exophthalmic Goiter Treated by Operation. A. J. Walton.—p. 309.
17 An Alleged Death of Male from Tight Lacing. Curious Medicolegal Case. W. A. Brend.—p. 339.
18 Recent Work on Anesthetics. J. Blomfield.—p. 347.
19 Review of Tropical Diseases. R. T. Hewlett.—p. 352.
20 Writer's Cramp and Allied Affections: Their Treatment by Massage and Kinesitherapy. D. Graham.—p. 363.
21 Principles of Modern Methods in Urethritis. J. MacMunn.—p. 373.
22 Case of Postpneumonic Aphonia. W. E. Boyd.—p. 388.
23 Case of Tuberculous Meningitis of Unusually Long Duration. G. H. Hickling.—p. 390.
24 Diagnostic Puzzle. F. J. E. Godson.—p. 392.

Sei-I-Kwai Medical Journal, Tokyo

September, XXXVI, No. 9

25 A Disease of Pigeons Due to Partial Inanition. Y. Kon and M. Okazaki.—p. 91.

Bulletin de l'Académie de Médecine, Paris

September 18, LXXVIII, No. 36, pp. 227-297

26 *Surgery of the Heart. P. Delbet and E. Delorme.—p. 243.
27 Control and Analysis of the Alkalinity of Solutions of Chlorinated Soda Used in Surgery. W. Mestrezat.—p. 295.

26. **Surgery of the Heart.**—Delorme has compiled seventeen cases of projectiles in the heart, and states that the missile was removed in thirteen cases, with recovery in all but three. The list includes the successful removal of a projectile in the right ventricle. The operation for removal of a projectile in the heart proceeds very simply, with no sensational features. The injuries discussed might all have been avoided, probably, if a steel breastplate had been worn. The field of intervention on the heart is discussed with much detail, full summaries of a number of cases of gunshot wounds of the heart being given, and the indications according to the parts of the heart involved. He expresses surprise that, from the records to date, no attempts seem to have been made to suture the heart, but projectiles are being extracted with almost constant success.

Bulletins de la Soc. Méd. des Hôpitaux de Paris

July 20, XLI, No. 25, pp. 869-928

28 Decompressive Trephining. H. Dufour and R. Zivy.—p. 872.
29 *Purulent Pleurisy Cured without Fistula by Filiform Drainage. Chaput and Dufour.—p. 875. Chaput and Florand.—p. 877.
30 *Varying Response of Meningococci to Different Antiserums. Nicolle, E. Debains and C. Jouan.—p. 878; A Netter.—p. 882.
31 *Fermentation of Sugar and Anaerobiosis of Diphtheria Bacilli. H. Stévenin.—p. 890.
32 *Tin in Treatment of Furunculosis. I. Bruhl and J. Michaux.—p. 892.
33 *Exophthalmic Goiter in Soldiers. P. Merklen.—p. 894.
34 War Wounds of Spinal Cord. G. Guillain and J. A. Barré.—896.
35 *Suprarenal Dyspepsia. M. Loeper, Beuzard and Wagner.—p. 903.
36 *Myotonic Reaction with Pleuropulmonary Tuberculosis. M. Loeper and H. Codet.—p. 907.
37 *The Obsidional Bacteria and Their Pathologic Manifestations. Sacquépée.—p. 917.
38 *Icterohemorrhagic Spirochetosis. Valassopoulo.—p. 920.

29. ***Filiform Drainage in Pleurisy.***—Chaput calls attention to the prompt and permanent benefit from filiform drainage in the three cases of pleurisy he reports in detail. This brings to five his total cases of severe purulent pleurisy, including two with gangrene, in which, as he says, without general anesthesia or resection of a rib, the patients were promptly cured by this simple technic.

30. **Different Types of Meningococci.**—Nicolle and his co-workers tested 105 specimens of meningococci of different origins for their agglutination response to monovalent immune serums from the horse and to normal horse serum. The responses classed the meningococci as belonging to four types. Type A seems to correspond to Gordon's Types I and III and Ellis' Types I and II. Type B corresponds to Gordon's Types II and IV. The Type A seems to be identical with Dopter's meningococcus. The findings reported confirm the importance of using both A and B in preparing the immune serum, or else mixing the two antiserums. They also suggest the necessity for determining in each epidemic which is the prevailing type and using a corresponding antiserum.

Netter's experience with serotherapy in 323 cases of meningitis since 1908 confirms the reliability of the agglutination test for classifying the type of meningococci involved in each individual case. He found the B type in his last four cases of meningitis accompanied with purpura, and also in a case of meningococcus septicemia preceding the meningitis by several weeks. In three recent cases from which the B meningococcus was cultivated, rapid recovery followed B antiserum in the two cases in which it was available, in marked contrast to the course in the other case.

31. **Differentiation of Diphtheria and Pseudodiphtheria Bacilli.**—Stévenin reports that in his research the fermentation of sugar and the growth without oxygen plainly differentiated the true diphtheria from the pseudodiphtheria germs. These biologic reactions seem to be constant.

32. **Tin in Treatment of Furunculosis.**—Bruhl and Michaux relate experiences with intramuscular injections of colloidal tin which confirm the view that in this we have another weapon at our disposal in treatment of furunculosis, but that it is not invariably successful.

33. **Exophthalmic Goiter in Soldiers.**—During the last six months, Merklen has encountered about ten cases of exophthalmic goiter in men sent back from the trenches on that account. Other hospitals have reported a similar increase of cases of exophthalmic goiter in men although the total number is small. It usually came on suddenly as is the rule when it is of emotional origin.

35. **Suprarenal Dyspepsia.**—Summarized page 947.

36. **Myotonic Reaction with Tuberculosis.**—Summarized page 1205.

37. **Obsidional Infections.**—Sacquépée gave the name obsidional or siege bacteria to a group of bacteria he found in men who have been for some time in the trenches. The most important of the affections induced by these bacteria is a febrile state with anemia but no eruption and no typhoid state. There is often jaundice and a meningeal condition without appreciable changes in the fluid. In the few necropsies that have been made the liver showed evidences of infection and the spleen was hypertrophied and the kidneys were tumefied and yellow, but the main lesions were hemorrhagic patches and small ulcerations in the bowel, predominantly in the ileum and cecum, with swollen mesenteric glands. No other specific bacteria could be found and there was deviation of complement with the obsidional bacterium discovered. These were the exclusive findings also in a fatal case of choleriform enteritis, and animals inoculated with the bacteria developed similar intestinal lesions.

38. **Icterohemorrhagic Spirochetosis.** — Valassopoulo discusses his experience with infective febrile jaundice at Alexandria, analyzing 300 hospital cases with 32 per cent. mortality, nearly all with necropsy. Since Alexandria and Smyrna have been sewered and the sewer rats poisoned off, the disease has ceased to be endemic at these points. He never observed a case in a child and only very rarely in women, and never a case of direct contact from man to man. The rat seems to be the indispensable intermediary. In some of the epidemics the mortality was 50 or 60 per cent. He gave extract of liver subcutaneously, and when the kidneys were seriously involved he obtained relief with wet cupping or venesection. Isolation and serotherapy promise still better results now.

Journal de Médecine de Bordeaux

September, LXXXVIII, No. 10, pp. 195-216

39 *To Facilitate Search for Helminths in the Stools. J. Carles and E. Barthélemy.—p. 195.
40 Treatment of Traumatic Dislocation of the Patella. A. Charrier and H. Fontaine.—p. 199.
41 *Sunlight in Treatment of Wounds. D. Frèche.—p. 205.

39. **Enrichment Method in Examining Feces for Parasitism.**—Carles and Barthélemy discuss the shortcomings of the different methods in vogue for detecting helminths, their encysted forms and ova in stools. They declare it is necessary to fluidify and homogenize the specimen of stool and bring it to the exact specific gravity most effectual for centrifuging out the parasites and their ova. They get rid of the coarser elements by passing the material through a wire sieve and a silk sieve (Hall). They take 20 gm. of feces to begin with, and dilute with physiologic salt solution containing 10 per cent. formol. The silk sieve has 90 threads to the centimeter (No. 90), except when seeking for ova; these require No. 32. The sieved fluid is then distributed in the centrifuge vials and centrifuged at 1,800 turns for one minute. The supernatant fluid is decanted and the sediment treated with a mixture of 12 gm. citric acid and 2 gm. of a 40 per cent. solution of formol and 86 gm. of water. The specific gravity of this is 1.047. Then 1 or 2 c.c. of ether is added and the tube agitated briskly to detach the sediment. Then centrifuge for thirty seconds at 1,800 revolutions. Then *stir up the zone separating the ether from the fluid, using* the tip of a pipet closed in the flume. This is to restore any cysts that might have been carried up by the ether. Then centrifuge again for thirty seconds as before, and decant all but the sediment. By this technic there is nothing left in the sediment except the helminths, encysted forms of protozoa, ova, and a little other debris of high specific gravity. The specimen is then ready for the microscope and gives exceptionally clean and clear microphotographs, as they illustrate by a few examples showing the lamblia and the encysted forms, with only a few vegetable cells, in one of the four microphotographs.

41. **Sunlight Disappointing in Treatment of Wounds.** — Frèche quotes experiences which demonstrate that the bactericidal power of sunlight is very small in a moist medium. Hence wounds do not benefit from exposure to sunlight as they are not dry and as the blood in the tissues absorbs the more useful rays. While sunlight may kill dry anthrax spores in from twenty-nine to fifty-four hours, this takes very much longer when the spores are sheltered from the air or kept moist. His experience has been less favorable with wounds treated by exposure to sunlight than with other methods of treatment. The only wounds that seemed to benefit were of the torpid type, with smooth, pale pink tissues and no tendency to granulations. But even in these cases, other physical or chemical stimulants gave equally good results.

Lyon Chirurgical

July-August, XIV, No. 4, pp. 625-792

42 *Wounds of Vessels. R. Grégoire and H. Mondor.—p. 625.
43 *Immediate Treatment of Wounds of Vessels. L. Sencert.—p. 640.
44 *War Wounds of Arteries without External Hemorrhage. H. Alamartine.—p. 687.
45 Arteriovenous Aneurysms. M. Patel and L. Bérard.—p. 709.
P. Bonnet.—p. 715.
46 Shell Wound Involving Jugular and Carotid Vessels. (Le syndrome du sinus pétreux supérieur.) R. Leriche.—p. 728.
47 *Course of War Wound in a Hemophiliac. N. Fiessinger and R. Montaz.—p. 738.
48 *Periarterial Sympathectomy for Posttraumatic Reflex Nervous Disturbances. R. Leriche and J. Heitz.—p. 754.

42. **War Wounds of Vessels.**—Grégoire and Mondat relate some typical instances of tardy hemorrhage and tardy opening of the artery after a vessel had been injured by a projectile. Among their eighty cases of severe wounds of a vessel, in twenty-four there were no signs of hemorrhage nor hematoma nor ischemia, and only eleven presented immediate and persisting hemorrhage. At their ambulance it was the routine practice to ligate the vessel above and below the injured area, on sound segments. The skin was never sutured at once unless they were sure there was nothing to cause

concern, as gangrene is always imminent after a gunshot wound of a vessel. All the men recovered except two who succumbed to tetanus or gas gangrene, and four others with fatal secondary hemorrhage or anemia.

43. **Immediate Treatment of War Wounds of Vessels.**—In Sencert's experience with forty-two operative cases of hematoma, intense pain and impotence of the limb almost invariably accompanied the wound of the artery, along with more or less shock. Cases of supposed fracture of the femur with complete inability to use the leg sometimes proved to be the result of severing of the popliteal vein, the bones intact. The complete impotence of the limb and the pain may be in striking contrast to the visible injury of the soft parts. The injury of the vessel sheath and its sympathetic plexus likewise explain the tendency to shock. The vessel should never be ligated if suture is possible, but every hematoma should be evacuated at once. He gives an illustrated description of the best mode of access to the trunk vessels of the axilla, base of the neck, and elsewhere. By lifting up the main artery on a stout catgut it is kinked and the blood stream arrested. This has another advantage over a ligature as by lowering the catgut the blood flows again and the lesion in the artery is thus accurately located. He has found this method of hemostasis work well on the common carotid, external iliac and other arteries. Even at the best, diffuse hematomas are dangerous; fully a third of those involving important arteries treated by ligation in the wound developed partial or total necrobiosis below.

44. **War Wounds of Vessels Without External Hemorrhage.**—Alamartine reports thirty-two operative cases of aneurysm or arteriovenous fistulas, and discusses the various minor symptoms.

47. **War Wound in a Hemophiliac.**—The young man, his brother, his mother and her brother were all bleeders. He had had three severe experiences with persisting hemorrhage at different times, but the bleeding had always stopped spontaneously about the twelfth day, regardless of the measures applied. Wounded in the hand, sheet hemorrhage kept up for the usual twelve days and then stopped, but the anemia was fulminating and extreme. The blood recuperated, however, as rapidly as the anemia had developed. The whole arsenal of measures to combat hemophilia had been applied but none seemed to do any good, except strong compression with the limb raised. The minute details of analysis of the blood at intervals show that there was no lack of fibrinogen or calcium salts. Neither horse serum nor beef serum accelerated coagulation, which demonstrates that these serums do not supply a lacking thrombozym but act as antigens, inducing an organic reaction. Fresh human serum shortened the interval before coagulation but this effect was still more marked with white corpuscles from normal human blood. When washed white corpuscles were added to the hemophiliac blood, coagulation occurred rapidly. This seemed to show that the white corpuscles supplied the element which was lacking in the hemophiliac blood. It is possible to obtain a leukocyte clot which might aid in arresting a hemophiliac hemorrhage applied directly to the bleeding spot. Draw 5 or 10 c.c. of venous blood into twice its volume of one third alcohol (*alcool au tiers*). Agitate. Centrifuge immediately and decant the hemolyzed fluid. The clot of leukocytes left can then be applied directly to the bleeding surface. This seems to be unquestionably the best local method for promoting local coagulation.

48. **Periarterial Sympathectomy.**—See abstract 60 below.

Paris Médical

September 15, VII, No. 37, pp. 225-240

49 *Pulmonary Syphilis. Leredde.—p. 225.
50 *Improved Technic for Herniotomy. (Procédé antéfuniculaire.) P. Soubeyran.—p. 234.
51 Gage for Bladder Sphincter Action. Uteau and Rey.—p. 239.
52 Salicylate Ionization in Case of Trigeminal Neuralgia. Olivier.—p. 239.

September 22, No. 38, pp. 241-256

53 *Systematization of Measures to Repress Venereal Disease. Gougerot.—p. 241.
54 *The Psycho-Physiologic and Moral Aspects of Reeducation and Rehabilitation of the Wounded. P. Sollier.—p. 246.
55 Costal Cartilage Graft to Close Skull Defect. Soubeyran.—p. 249.
56 *Stimulation of the Accelerator Nerves Renews Arrested Heart Action. J. P. Morat and M. Petzetakis.—p. 252.
57 Quantitative Determination of Sugar Content of the Blood. L. Bauzil and L. Boyer.—p. 254.
58 Attacks of Amebic Dysentery in Carrier after Antityphoid Vaccination. Bouyer.—p. 255.

49. **Overlooked Form of Pulmonary Syphilis.**—Leredde reports positive responses to serologic and clinical tests for syphilis in many cases of recurring bronchitis, emphysema and asthma in young men and women. He reports the details of twenty such cases. All had been inclined since childhood to shortness of breath on exertion, and several had emphysema. Some had attacks of asthma, and all had certain or probable inherited syphilis. There seems to be some underlying active process of sclerosis. Tests for syphilis should be made in all cases of asthma, emphysema, dyspnea on effort, and recurring bronchitis at any age.

50. **Operative Treatment of Inguinal Hernia.**—Soubeyran gives an illustrated description of what he calls the antefunicular procedure for strengthening the wall in correction of inguinal hernia. Its chief advantage over the Bassini is that the cord is not drawn to one side and thus subjected to possible injury, but is pushed down into the plane of the subperitoneal cellular tissue in contact with the peritoneum.

53. **Venereal Diseases.**—Gougerot reiterates that every means of reducing the spread of venereal disease should be intensified and applied simultaneously. He describes the model, entirely gratuitous, "annex service" to seek out and cure the contagious cases, and thus suppress the source, and he insists that every city, every important garrison and agglomeration of working people, every place large enough to have a prefect or subprefect should have this annex service. Its chief should be in close touch with the prefect, and the service should work along the five main lines: education of the public, and detection and treatment of venereal diseases—the dispensary open to men and women outside of working hours; surveillance and treatment of prostitutes with dispensary and hospital care apart from the quarters for the nonprostitutes; search for and treatment of foci of contagion. He has organized eleven annex services of this kind in his district. The chief of the annex service should be an expert in dermatology, urology and practical gynecology besides venereology. The personnel should include a bacteriologist, a dentist, and one or two men or women nurses trained specially for the service. The annex service should organize substations throughout the district not restricting its action to the towns. For this he suggests flying dispensaries, *consultations ambulantes.* The chief or his assistant takes in an automobile the necessary equipment for examination and treatment, and gets the proprietor of a large factory to lend him the use of a room at a convenient hour, or he gets some room nearby. He may thus be able to attend to several large industrial establishments in a day. Gougerot has found this plan work finely in the district in his charge. Otherwise he has to depend on the factory physician to sift out and send to the central service those needing attention. Free railway return tickets are given out by the mayor for this purpose. Gougerot discusses further the difficulties and obstacles presented by organization of the annex services, and by the objections and inertia of the existing town and hospital authorities, and how to overcome them. It will require legislation for central organization of the service, and placing the surveillance of prostitutes in the hands of the chief of the service. In conclusion Gougerot reviews the vast field of prophylaxis, urging especially financial inducements for earlier marriages, and the conferring of the rights of a legal wife on a girl that has been deflowered. He also urges the need for recreation centers for the young, and canteens, particularly in the railroad stations for soldiers passing through. Intensify, organize and unify, and above all, be quick about it, is his cry.

54. **Motor Reeducation.**—Sollier declares that mechan apparatus do actual harm in treatment of functional tence of nervous origin, actually increasing the tro many cases, both physiologically and psychologic

the other hand, all the elements are favorable for a cure when the reeducation is along the lines of work to which the patient was formerly accustomed. As movements return, the rehabilitation is both physical and moral. In the "neurologic center" in his charge, thirty months' experience has confirmed the advantages of farm and gardening work and woodworking in rehabilitating the wounded both in body and spirits.

56. **Resuscitation of the Heart by Stimulating the Accelerator Nerves.**—Morat and Petzetakis give some electrocardiograms showing that after the heart action in animals had been arrested for over twenty minutes, it could be started to working anew by applying a medium electric current to the accelerators or even to one alone. The experiments were made with animals under the influence of chloroform and extreme cold. One tracing shows how the electric stimulus was applied to the right sympathetic just above the first thoracic ganglion. All the cavities of the heart had stopped during diastole. Five seconds after the stimulation of the accelerators, the right auricle and almost at once the left auricle also began to contract while the diastole of the ventricle persisted. The auricular contractions, weak at first, gradually became stronger and then suddenly, at about the seventeenth second, the ventricles started up, the rhythm closely like that of the auricles. Two other electrocardiograms show the similar revival of heart action in dogs after ten minutes of arrested heart action.

Presse Médicale, Paris

September 10, XXV, No. 50, pp. 513-528

59 The American Red Cross. P. Desfosses. Title Page.
60 *Periarterial Sympathectomy. R. Leriche.—p. 513.
61 *Facial Paralysis. V. Pauchet and J. Labouré.—p. 515.
62 *Injury of Feet and Hands from Cold. J. Cottet.—p. 517.
63 *Mechanical Device for Dilatation with Laryngotracheal Stenosis. A. Jouty.—p. 518.
64 The Present Significance of the Amino-Acids. P. Desfosses.—p. 519.

September 13, No. 51, pp. 529-536

65 Professional Secrecy from Medicolegal Standpoint. H. Berthélemy.—p. 529.
66 *Flexion of Big Toe on Percussion of Achilles Tendon. M. Villaret and M. Faure-Beaulieu.—p. 531.
67 *The Limits of Asystoly. M. Perrin.—p. 532.
68 Action of the Pituitary Body on Kidney Functioning. M. Romme.—p. 533.
69 Treatment of Keratitis with Hypopyon. Teulières.—p. 536.

60. **Peripheral Sympathectomy.**—Leriche relates that in thirty-seven cases he has treated rebellious contracture or causalgia by denudation and excision of the periarterial network of sympathetic fibers. Others have applied the measure also since his first publication on the subject, summarized in these columns April 21, 1917, p. 1216. In this later series the pain was permanently abolished in some but not in all. In five cases of trophic ulceration a complete cure was realized in all. The outcome was a complete success in sixteen of the total thirty-seven cases, and when the peripheral sympathectomy was associated with massage and training of the muscles, good results were obtained in a number of the others. On the whole, peripheral sympathectomy is an interesting and useful operation in severe forms of what are known as "reflex nervous disturbances," pain, paralysis and contracture. The exact indications for it are not quite decided as yet.

61. **Facial Paralysis.**—Pauchet and Labouré describe the measures indicated for medical and for traumatic facial paralysis, and give an illustration of the technic for suture of the nerve in case of fracture of adjacent bones. In twelve operations on the nerves the outcome was excellent in seven. Operations on other nerves, they reiterate, seldom give as good results as anastomosis of the nerves responsible for facial paralysis after a war wound.

62. **Disturbances from Chilling of Hands and Feet.**—Cottet calls attention to the acroparesthesia from the action of cold which is the first symptom of what progresses to frozen feet and hands. He thinks that the importance of chilling as a factor in pathology has been too much overshadowed by the notions of infection. Cold, and especially damp cold, may be an important factor in those states of vague pains ascribed sometimes to rheumatism, sometimes to neurotrophic disturbances. The prompt and remarkable benefit under local heat confirms this assumption. The segments of hypoesthesia *a frigore* may be exactly like those of hysteria. They are symmetrical and sharply defined, and are accompanied by zones of hyperesthesia. The circulatory disturbance under the action of the cold interferes with the nourishment of certain nerve fibers in the region as their blood supply is shut off. The resulting diffuse and superficial neuritis classes this acroparesthesia from chilling with the trophoneurotic vasomotor syndromes.

63. **Treatment of Laryngotracheal Stenosis.**—Jouty gives an illustrated description of his method of dilation through a tracheolaryngostomy. A soft rubber tube in the throat is held in place by a hollow mallet shaped metal tube. A silver plate slipped over the projecting shank holds a small dressing against the opening around the projecting tube, and a nut holds this plate firm. This plate and the projecting nut are all that shows, no other dressings being needed.

66. **Flexion of Big Toe on Percussion of Achilles Tendon.**—Only the terminal phalanx bends, and this occurs when the sciatic nerve is diseased. The reflex cannot be elicited in normal conditions.

67. **Limits of Asystoly.**—Perrin warns that we must not wait for the trio, hypotension, tachycardia and oliguria, before diagnosing insufficiency of the contracting power of the heart. There are atypical forms of it, sometimes with abnormally high blood pressure, sometimes with what seems to be polyuria, but is in reality a relative oliguria compared with the amounts of urine previously voided. The pulse likewise may be abnormally slow, although in comparison with the previous pulse rate it is much accelerated. In one such case the pulse never went above 74 although the temperature ran up to 39.2 C. during the pneumonia which had affected the heart. Under digitalis and good nursing the man recovered, his pulse then declining to its habitual rate of 40. Perrin adds that the atypical forms of asystoly call for the same measures as the typical cases.

Correspondenz-Blatt für Schweizer Aerzte, Basel

September 15, XLVII, No. 37, pp. 1185-1216

70 Dangers of the Stem Pessary. (Gefahren des Intrauterinpessars.) H. Guggisberg.—p. 1185.
71 *Medicinal Silver Poisoning. (Argyria universalis.) O. Steiger.—p. 1192.
72 Training Teachers for Lip Reading Courses. (Absehunterricht.) Nager.—p. 1200.

71. **Poisoning from Silver Salts.**—Besides four cases of universal argyria following medication with silver salts, Steiger mentions some industrial cases in men or women working with silver. He discusses the literature on the subject and the various clinical pictures induced. In three of the four medicinal cases reported, the universal argyria was pronounced, and nothing seemed to modify it. The total dosage had not been as large as in other cases on record, the patients having taken only from 4 to 6.5 gm. silver nitrate in the course of from one to thirteen years. One tabetic man of 56 had taken 400 pills of 0.01 gm. each in the course of five years; the other patients were women in the forties. In the cases previously published, 20 or 30 gm. had been the amount taken before the argyria developed. In Steiger's fourth case the argyria was restricted to the conjunctiva; the silver nitrate had been applied 100 times to the eye in treatment of trachoma. He urges research on silver poisoning as better understanding of this might throw light on numerous questions as to absorption and elimination. In his cases silver was found in the stools and in some cases in the blood, but never in the urine.

Chirurgia degli Organi di Movimento, Bologna

August, I, No. 3, pp. 325-407

73 *Treatment at Base Hospital of War Wounds on Limbs. E. Magni.—p. 325.
74 *Sodium Salicylate in Prophylactic Treatment of War Wounds of Joints. G. Impallomeni.—p. 367.
75 *Remote Results of Treatment of Scoliosis. A. Serra and G. Valtancoli.—p. 380.
76 Anatomic Iconology by Orthopedic-Cinematic Surgery. G. Vanghetti.—p. 400.
77 *Technic for Exposing the Radial Nerve in the Upper Arm. V. Putti.—p. 403.

73. **Treatment of War Wounds.**—Magn[illegible] injury of the cases such as reach him in the base hospital [illegible]eed into the Sixteen double-line pages of titles of articles on [illegible]ceps are tology of war are appended to his article. His exp[illegible]ty-two with 3,618 cases of war wounds of limbs during an eig[illegible]ny months' period has convinced him that it is best to leave [illegible] wounded limb unmolested as much as possible and keep it quiet. This was preached by Magati as long ago as 1616, so he calls this system of immobilization with rare change of dressings the Magati method. The wound should be cleared out at first but then the dressing may be left untouched for two weeks or more unless special indications arise. The skin irritated by prolonged contact with pus is soothed by painting with paraffin dissolved at 45 C. He did not drain often, believing that this is necessary only when there is danger that an infectious process may be shut in too soon by the superficial tissues. He never injected any drugs into the wound, never aspirated fluid or rinsed out a joint, and resected only in two cases and extracted the projectile in three cases. All the others recovered under immobilization alone, draining merely when there was a pus pocket and not replacing the drain when this was cleared out. Solid plaster casts answered the purpose better than the fenestrated. Massage in case of stiffness and adhesions is more effectual when done under active hyperemia or, better still, under passive stasis. His experience has shown further that the large vessels can be ligated at any point in their course unless there are acute or chronic inflammatory processes in veins, obstructing the venous collateral circulation. In this case gangrene is inevitable.

74. **Sodium Salicylate in Prophylaxis of Sepsis in War Wounds of Joints.**—Impallomeni cites authorities to show that sodium salicylate is eliminated by the synovial membranes. This suggested that it might aid in warding off sepsis in case of a war wound of a joint, as this drug is the sovereign remedy for rheumatic arthritis. The trauma from the war wound evidently aids in attacting the drug to the spot, like an infectious process, and his experience during the war, he says, has brilliantly confirmed the correctness of his premises. A number of typical cases are described and illustrated, all corroborating the value of sodium salicylate for warding off septic processes in the joint. A dose of 0.5 gm. is given by the mouth at the first dressing, when a joint has been wounded, and this treatment is continued later or, better yet, a subcutaneous or intramuscular injection or both are given. The synovia responded positively to the ferric chlorid test for salicylic acid in about four hours after ingestion of 1 gm. of sodium salicylate, and with greater intensity by the sixth hour. The interval was half an hour shorter when the drug had been given subcutaneously or intramuscularly. When the response is negative after the infectious process has been installed for some time, this testifies that the endothelium of the synovial membrane has been extensively destroyed, and this alone may call for prompt surgical intervention to arrest the evidently progressive lesion. The formula found best adapted for subcutaneous or intramuscular injection is a mixture of 1 gm. sodium salicylate; 0.01 gm. stovain; 0.04 gm. sodium chlorid and enough 25 per cent. glycerin-water to make 10 c.c. The vial containing this is heated to 100 C. (212 F.) for twenty minutes.

75. **Scoliosis.**—Serra and Valtancoli write from the Rizzoli Orthopedic Institute at Bologna to analyze the course and outcome of treatment in 483 cases of scoliosis classified according to the clinical and morphologic features of the cases. Over 82 per cent. of the patients were girls, but the severest forms of curvature of the spine were more prevalent in boys. The different varieties of curvature and their proportionate frequency at different ages are shown in various charts.

77. **Exposure of the Radial Nerve.**—Putti expatiates on the advantages of Gosset's technic for direct access to the radial nerve. The arm is placed on a table—an extension of the plane of the bed—the arm slightly abducted and rotated inward, the elbow bent at a right angle and the forearm close to the chest. The incision, about 15 cm. long, slants from above downward and inward, starting about an inch

tones, etc., for which the hearing is most defective, and practices these predominantly. The sittings are for ten to twenty minutes, twice a day, treating each ear separately. Local lesions and constitutional causes must be sought and corrected so far as possible, and it is useless to apply this treatment to the very old or the very young, the congenitally deaf, the stupid and those unwilling or incapable of concentrating their [illegible]ntion on the course of treatment. He insists also on the [illegible] living a sociable life, listening and talking, not
78 *Recurrin[illegible]s time reading or in solitude but keeping up
[illegible]he hearing, listening to music and to reading
79 *Present Status [illegible]efit has been realized in the first thirty
culosis. E. Bert[illegible] daily, for five or ten minutes, there is
September [illegible] up longer. With very sensitive
80 Roentgen Localization of For[illegible]ave only one sitting a day or at
[illegible]nt has never done harm in
September 16, No. 74, [illegible]e, at least it never aggra-
81 Agglutination of Typhoid Bacilli in [illegible].
—p. 1001.

[illegible]therapy.—A robust
78. **Recurring Tetanus.**—In the four case[illegible] an attack of
tetanus developed after a secondary operation tw[illegible]d palpation
more after the primary wound and preventive inj[illegible]xtremely
antiserum, or else after a course of exposures to sunli[illegible] acute
without known inciting cause. [illegible]v

79. **Prophylactic Tuberculin Treatment.**—Bertarelli relates that he experimented with tuberculin on himself, and found that the deviation of complement test elicited a positive reaction in a few weeks after he had begun to give himself a weekly injection of minute amounts of old tuberculin. By the end of a year he had reached the dose of 1 c.c., and now, three years after the last injection the deviation of complement test is still strongly positive. Theoretically, a prophylactic course of tuberculin would seem justified in families exposed to special danger of infection, and he urges others with more opportunity to try it.

Policlinico, Rome

September 9, XXIV, No. 37, pp. 1121-1148

82 Diagnosis of Factitious Skin Diseases. R. Rivalta.—p. 1121.
83 Diagnosis of Factitious Lesions of the Ear. T. Mancioli.—p. 1127.
84 Physical Causes for Exemption from Military Service. G. Breccia. —p. 1130.

Riforma Medica, Naples

September 8, XXXIII, No. 36, pp. 869-892

85 *Rheumatic Purpura with Certain Features Suggesting Scurvy. U. Gabbi.—p. 869.

85. **Scorbutiform Purpura in the Troops on Active Service.**—Gabbi comments on the remarkable healthiness of the troops exposed to the cold of the firing line among the mountains. Although so many of the men come from the warm south of Italy and the islands, they seem to thrive among the snows of the mountains. But when there is any morbidity it is usually of a hemorrhagic type. He describes here in particular a rheumatic purpura, with features suggesting scurvy, which is either a new morbid entity or an old one with so many new characteristics that it assumes a new clinical physiognomy. The details of nineteen cases are given in full with some illustrations. The men had very rarely eaten canned meat. Mild and severe cases were encountered grouped together, but the whole trouble was benign and comparatively brief, free from complications or sequels, and except in a few cases there was no bowel trouble. There was always more or less fever and enlargement of the spleen, with slight albuminuria and sometimes hemorrhagic nephritis. No benefit followed the change to food which cures scurvy. Another peculiar feature of the cases was that they developed in spring and summer and the winter was practically free from cases. Sometimes a mild case was apparently subsiding when it flared up suddenly into a severe form with symptoms suggesting scurvy. Gum lesions were present even in certain mild cases and were absent in some of the gravest cases. A long question blank was sent to the various hospitals asking for the special features of this disease that had been n[illegible]
The data thus collected show that in about 60 per [illegible]
the cas[illegible] was gingivitis; periarticular lesions
per [illegible]al joint lesions in a very few [illegible]

the other hand, all the elements are favorable for a cure when the reeducation is along the lines of work to which the patient was formerly accustomed. As movements return, the rehabilitation is both physical and moral. In the "neurologic center" in his charge, thirty months' experience has confirmed the advantages of farm and gardening work and woodworking in rehabilitating the wounded both in body and spirits.

56. **Resuscitation of the Heart by Stimulating the** -por- uggests
tor Nerves.—Morat and Petzetakis give some el portance of
grams showing that after the heart action is always a
been arrested for over twenty minutes, it fth lassitude and
working anew by applying a medium onset of the fever in
accelerators or even to one alone
made with animals under the
extreme cold. One tracing **nica Medica, Florence**
was applied to the righ *VIII, No. 36, pp. 349-356*
thoracic ganglion. All the Wassermann Test. C. Quadrone and
during diastole. p. 349.
accelerators, t *September 15, No. 37, pp. 357-361*
auricle als s Vaccines in Treatment of War Wounds. G. Stradi-
tricle p and G. Ollino.—p. 357.
grad le War Neuroses. G. Barbensi.—p. 360. Continuation.

57. **Autogenous Vaccines in Treatment of War Wounds.**—Stradiotti and Ollino prepared the vaccine with the various germs found in the wound, and made a point of applying it at once or at latest at the second dressing. One or more loops of the pus were transferred to bouillon and the vaccine was sterilized by addition of chloroform to the culture medium, agitating it at intervals for two or three hours. After this it was always found sterile. In their hundreds of applications of these vaccines they never had an abscess or serious general reaction; at most there was a transient redness at the point of injection. They began with 1 c.c. of the bouillon culture, increasing the amount by 1 c.c. at each injection, at intervals of from three to six days; the larger the dose the longer the interval. The maximal dose reached in any case was 7.5 c.c., and this was borne perfectly. It is better to make fresh vaccine from time to time, and not use any one too long. The principle is rational, the procedure harmless, and the general impression of the results most favorable. The outcome was better the earlier the vaccine could be given but a beneficial influence was apparent often in cases of advanced infection if the general symptoms were not the expression of septicemic generalization of the infectious process. Even in such cases the fever frequently declined after the injection and did not go up again until several days later, when it could be again brought down by repeating the injection. The vaccine therapy is not adapted for very grave cases of inveterate suppuration in knee or thigh, such extensive lesions not being easily stimulated to defensive reactions. They have been applying this vaccine therapy for about a year, and usually are able to make the injection within forty-eight hours of the wound, but the technic used makes no provision for anaerobes. They apply the autogenous vaccines also in treatment of furunculosis and other superficial suppurating processes, and report further complete success in a small epidemic of erysipelas which was arrested by prophylactic injection of a vaccine prepared from one of the sick, thus protecting the forty other inmates in the surgical ward. These preventive doses were 1, 2 and 3 c.c., at three or four day intervals.

Brazil Medico, Rio de Janeiro

September 1, XXXI, No. 35, pp. 297-304

89 *Hodgkin's Disease. (Adenomycose.) E. C. Dias.—p. 297. Commenced in No. 34, p. 287.
90 *Acute Pyelitis in Children. C. de Rezende.—p. 298. Commenced in No. 34, p. 289.

September 8, No. 36, pp. 305-312

91 The Oxynema Helminths. A. L. de B. Barreto.—p. 305.
92 Flagellated Parasites in Vertebrates. IV, O. da Fonseca.—p. 305.
93 Operative Treatment in Little's Disease. A. F. de Magalhães.—p. 306. To be continued.

89. **Hodgkin's Disease.**—Dias announces that his research has apparently demonstrated that the causal agent of Hodgkin's disease is a remarkably polymorphous fungus. It locates in lymph glands and can be cultivated from them, and
heat confirms animals. His communication was presented
esthesia a -an Society of Tropical Medicine although this
They a by no means confined to the tropics, but it happens
panic articularly prevalent in the state of Minas Geraes in
zil, and special studies were made of it in the local branch
there of the Instituto Oswaldo Cruz with which he is connected. This research demonstrated that the disease was the classical Hodgkin's disease which was doubted at first, the possibility of a new morbid entity having been considered and the name "adenomycosis" suggested for it. Cultivation on Sabouraud's saccharosed gelose succeeded in about 50 per cent. of the inoculations, the growth with one type of the germ resembling that of cultures from actinomycosis. The other principal type is more bacilliform in aspect and cultures. These differences are more marked at first than later, in time all the cultures resembling each other. The rat, guinea-pig, rabbit and monkeys are susceptible to the germ, and all die sooner or later when inoculated in the peritoneum, although the experimental disease may last for a month or more. Until it is possible to classify the germ correctly, he has given it the provisional name of the *Adenomyces cruzi*. He thinks that leukemia may yet be proved to be a mycosis.

90. **Acute Pyelitis in Children.**—De Rezende describes a case to illustrate a common mode of onset of acute pyelitis in children in Brazil, recurring abrupt attacks of high fever preceded by a chill and followed by sweating, suggesting acute malaria or the fever of septicemia or suppuration. The urine of the nine months' babe contained extraordinarily large amounts of albumin, clearing up the diagnosis at once. In some cases the fever is continuous or subcontinuous as in typhoid, or it may be frankly remittent, or there may be slight chronic fever. In short, whatever the type of fever, in an infant or child, and whatever its duration, examination of the urine should be a routine measure to exclude pyelitis as almost the first step. He has found the colon bacillus usually responsible, and notes that pyelitis attacks girls more than boys. These facts suggest prophylactic measures. In treatment, the aim should be to render the urine alkaline and keep this up until all symptoms have disappeared. His experience with pyelitis in children has fully confirmed Thompson and Hutchison's assertions in regard to the almost specific action of large doses of potassium citrate. This does not act on the bacilli, however, and after cessation of the alkali treatment de Rezende suggests that it might be well to follow with hexamethylenamin. The two should never be given together. For adults, he gives a solution of acid sodium phosphate, 10 gm. in 300 gm. cinnamon water. The dose is a tablespoonful in half a glass of sweetened water every four hours. The hexamethylenamin is given two hours later.

Revista de Medicina y Cirugia de la Havana

September, XXII, No. 17, pp. 449-476

94 Present Status of Treatment of Chronic Urethritis. L. F. Hirzel and V. P. Castello.—p. 449.

Semana Medica, Buenos Aires

July 26, XXIV, No. 30, pp. 85-116

95 *Treatment of Rupture of the Uterus during Delivery. E. Mazzini.—p. 85.
96 Arsenic in Treatment of Chorea. P. Aguilar and L. K. Wimmer.—p. 92.
97 *National Prophylaxis of Tuberculosis. E. R. Coni.—p. 94.
98 *Treatment of Anthrax with Normal Beef Serum. E. F. Solari.—p. 98.
99 Bill before Congress for a National Asistencia Publica. B. T. Solari.—p. 101.
100 The Psychology of Scientific Education. J. Santos Fernandez.—p. 111.

95. **Treatment of Rupture of the Uterus During Delivery.**—Mazzini reports five cases of rupture during delivery which he treated by drawing down with his hand the upper lip of the rupture inside and well past the lower lip, then keeping up the traction on the upper lip by substituting long forceps for the hand with which he was holding it. The lower portion of the uterus was then packed with gauze around the forceps, distending it well, and then the vagina. He uses two forceps or more if needed to draw the upper lip of the rupture well down all around, and leaves a drain tube.

The tamponing all around them prevents any injury of the walls. A retention catheter is then introduced *into the* bladder, and the projecting handles of the forceps are wrapped in gauze. He removes the tampon after seventy-two hours and also the drain tube and forceps, but avoids any exploratory measures; merely giving an antiseptic vaginal douche under weak pressure. The treatment after this is as for any parturient. This technic when introduced by Boero was supposed to be applicable only to spontaneous rupture, but Mazzini's five cases testify to its suitability for traumatic rupture whenever the cervix is open enough for the hand to be introduced to grasp the upper lip of the tear. In his experience the promptly and permanently favorable results in 80 per cent. of the cases surpass even Boero's 75 per cent. of cures in his twenty cases since he published this technic in 1910. In Mazzini's first case the uterus had ruptured at two points, and he sutured the longitudinal tear and treated the transverse tear as described above. The woman recovered without sequels, and all seemed to be normal a year later. In the one case in which fatal peritonitis developed, this was the ninth pregnancy. Six had terminated normally and this one seemed to be proceeding regularly at first and until the rupture. The placenta had to be removed by hand, as it had caught in the rupture opening. The front of the entire segment had been torn off and, notwithstanding the Boero procedure, peritonitis developed and proved fatal the sixth day. The fetus died about *the time of the rupture* in each case. The rupture occurred in the maternity in all but the first case.

97. **Tuberculosis in Argentina.**—Coni mentions that Argentina was the first country in Latin-America to include pulmonary tuberculosis among the diseases requiring compulsory notification. He reviews the history of tuberculosis in Argentina and of what has been done to arrest its spread. Fully 85.6 per cent. of the general mortality in 1913 throughout Argentina was due to tuberculosis. He sustains those who plead for preventoriums, farm colonies and similar inexpensive and accessible institutions for caring for the tuberculous instead of, at first, expending much money on mountain and seashore sanatoriums. The Buenos Aires hospitals turn away every day, it is said, up to twenty or thirty applicants with pulmonary tuberculosis for whom no beds can be found.

98. **Normal Beef Serum in Treatment of Anthrax.**—Solari reports that his trials of normal beef serum in treatment of anthrax have confirmed in every respect the statements of Kraus and Penna as to its efficacy. The results, *he says*, could not have been more satisfactory. It is evident that normal beef serum, heated twice for half an hour to 56 C., does not induce any injurious reaction when injected into man. He gave it subcutaneously in doses of from 10 to 30 c.c. in the twenty-four hours as a rule, sometimes giving more, up to a maximum of 60 c.c. The benefit was as prompt and as *marked* as with the prepared *immune serum he had been* previously using. The case history and chart from each of his six cases are reproduced.

Siglo Medico, Madrid

September 1, LXIV, No. 3325, pp. 645-664

101 Operative Treatment of Retroversion of the Uterus. V. Aza.—p. 646.
102 An Early and Rare Superficial Syphilitic Ulcerative Lesion on the Genital Organs. Sicilia.—p. 655.

September 8, No. 3326, pp. 665-684

103 Bilateral Genu Valgum. A. Morales.—p. 666.
104 Hydrochloric Acid during Courses of Alkaline Waters. M. Fernandez.—p. 667.
105 *Reeducation of the Hearing. C. Compaired.—p. 668.
106 Localization of Leishman Bodies in Liver. N. G. Barrio.—p. 670.
107 *Acute Nephritis and Renal Organotherapy. B. Gil y Ortega.—p. 671. Commenced in No. 3325, p. 650.

105. **Reeducation of the Hearing.**—Compaired expatiates on the advantages of the Zund-Burguet or similar apparatus for aiding in saving the hearing and *improving* it. He asserts that the improvement realized with this apparatus, which he has been using for six years, surpasses all that can be attained by *other means*, especially in the cases of deafness from otosclerosis and adhesive otitis. He seeks out the tones, etc., for which the hearing is most defective, and *practices these predominantly*. The sittings are for ten to twenty minutes, twice a day, treating each ear separately. Local lesions and constitutional causes must be sought and corrected so far as possible, and it is useless to apply this treatment to the very old or the very young, the congenitally deaf, the stupid and those unwilling or incapable of concentrating their attention on the course of treatment. He insists also on the patient's living a sociable life, listening and talking, not spending his time reading or in solitude but keeping up exercises of the hearing, listening to music and to reading aloud. If no benefit has been realized in the first thirty sittings, given twice daily, for five or ten minutes, there is no use in keeping them up longer. With very sensitive persons it may be better to have only one sitting a day or at longer intervals. The treatment has never done harm in any instance; if it does not improve, at least it never aggravates the condition.

107. **Acute Nephritis and Renal Organotherapy.**—A robust young man in the second or third week of an attack of influenza suddenly developed pulmonary edema, and palpation revealed that the right kidney and ureter were extremely tender and the left slightly so. The symptoms of acute *nephritis* became more and more threatening, with a tendency to coma by the end of the week. He was then given a subcutaneous injection of 10 c.c. of serum from the renal vein of the goat, and when hope had almost been lost, seventeen hours after the injection, copious diuresis set in and the alarming symptoms subsided. The injection was repeated the next day at the same hour and the organotherapy continued after this with kidney extract. This was suspended after three days on account of the expense, and the next day there was another attack of pulmonary edema but not so severe as the first. As recovery progressed there were occasional attacks of dyspnea even after the kidney functioning seemed to have been restored to normal. Gil ascribed the dyspnea to toxic weakness of the heart, and this assumption was *confirmed* by the *prompt* efficacy of caffein citrate, each time, given by the mouth or subcutaneously.

Grèce Médicale, Athens

XIX, No. 7-8, pp. 13-16. French supplement of Iatriki Proodos

108 *Masked Dysentery. J. Cecikas.—p. 13. In English.

Nos. 9-14, pp. 17-28

109 Primary Malaria in Macedonia. P. Abrami.—p. 17.
110 *Serotherapy of Malaria. Sotiriades.—p. 27.

108. **Masked Dysentery.**—Cecikas' experience has been that agglutination is not distinct enough as a rule to distinguish between *the different* species of bacilli responsible for bacillary dysentery. Biologic diagnosis, however, permits correct serotherapy, and in two cases reported in detail this proved successful after years of futile other treatments. One man of 30 had a *history of tropical enteritis seven years before*, treated with emetin later and various courses at spas, but the enteritis was liable to return every summer. There were also *attacks of tachycardia and joint trouble*, and the lower part of the left abdomen was tender. No amebas and no colonies of colon bacilli developed on the Drigalski medium but nonmotile bacilli proliferated that agglutinated the Kruse bacillus, and under Kruse-Shiga serum the chronic tendency to enteritis was permanently cured. By the eighteenth day no suspicious colonies developed while the colon bacillus flourished abundantly. This primary absence of the colon bacillus he regards as significant as also its reappearance as the man regained complete health. Cecikas remarks that with all the varying diagnoses and treatment during the seven years in this case, "the patient had stuck to enteritic diet, used aperient salts and took castor oil nearly every week, this regular life and diet explaining the complete *restitutio ad integrum* which undoubtedly followed the weakening of the dysenteric bacilli by the serotherapy and their final disappearance." This assumption of the superficial nature of the alterations caused in the bowel mucosa by the prolonged presence of the germs is sustained by another case of undiagnosed bacillary dysentery with dyspnea, palpitations, and polyuria, especially at night. The primary enteritis

dated from twenty-nine years before. Under the serotherapy complete health was speedily regained. In another case the chronic dysentery was regarded as enteritis mucosa and treated without benefit, but prompt recovery followed the serum treatment. The fourth patient was a woman of 28; the dysentery had commenced insidiously three years before and the symptoms had been ascribed at one time to metritis and a gynecologic operation had been done without relief. The rectal mucosa had ulcerated.

In young children and babies the bacillary dysentery may develop in an acute form. In one out of several such cases in his practice, the infant developed menacing "enteritis" two weeks after the father had been under treatment for frank bacillary dysentery. Without waiting for bacteriologic confirmation, Cecikas gave the collapsed infant the same serotherapy, and the child soon recovered. Cultivation of the stool taken at the first visit showed the Kruse Shiga bacillus agglutinating at 1:500. There are no distinguishing features in the early stage of acute bacillary dysentery in children, but the case as a whole may suggest by the second or third day to use the serum "which finally can do no harm. It is a golden rule to proceed in intestinal troubles at the first visit to bacteriologic examination of vomit and feces."

110. **Serotherapy of Malaria.**—Sotiriades reports that he injected serum from one patient with malaria into a second patient who had just contracted malaria. There was no further fever for four days then came a much milder attack and the plasmodium was found in the blood as at the first attack. A second subcutaneous injection of 10 c.c. of the serum from the first patient was made and the next day, during the interval a third injection was made. The second patient had no further fever during the twelve days he was under observation. The donor had the parasites still in the blood at the time but the spleen was not enlarged and he had had no attacks of chill or fever for some months.

Russkiy Vrach, Petrograd

XVI, No. 16-17, pp. 361-384

111 *Palliative Operation for Rectal Cancer. S. P. Fedoroff.—p. 361.
112 *Differential Diagnosis of Heart Disease. S. G. Mintz.—p. 361.
113 The Civilization and Medicine of Ancient Assyria and Babylonia. P. V. Modestoff.—p. 367. Continuation.
114 The Ferments in Typhoid. A. S. Solovtzoff.—p. 371. Continuation.
115 Vaccination against Typhoid. P. N. Triudin.—p. 373. Conclusion. A. O. Fraifeld.—p. 377.

111. **Palliative Treatment of Inoperable Rectal Cancer.**—Fedoroff comments on the difficulty of keeping fecal matters and fluids out of the lower segment of the rectum when an artificial anus has been made above. With the technic he describes, however, this can surely be accomplished, and the lower segment left in peace as completely as if it had been cut across, while the procedure is simple and harmless. He makes a slanting incision in the abdominal wall, about 10 or 12 cm. long, in the left iliac region, from 1½ to 2 fingerbreadths from the outer edge of the rectus muscle, and draws out through it the adjacent portion of the sigmoid flexure. Then he loosens up and cuts a strip from the aponeurosis of the external oblique muscle the whole length of the inner margin of the incision. This strip of aponeurosis is left connected with its aponeurosis bed only at the lower angle of the incision. Then this strip is passed through a button hole in the mesentery of the bowel, close to the latter. The strip is then passed around the bowel two or three times and drawn tight. The free end of the strip of aponeurosis is then sutured firmly to the opposite edge of the incision, and the bowel above is sutured to the lips of the incision. Then, according to circumstances; from two to five days later, an opening is made into the bowel above the ligature. By this means the lower portion of the rectum is shut off so that neither fluid nor solid matters can work their way into it, and the patient is spared all irritation and pain from this source.

112. **Differential Diagnosis of Heart Disease.**—Mintz' conclusions are based on examination of hundreds of men suspected of heart disease. He remarks in the first place that men with stomach trouble are liable to ascribe their disturbances to the chest or heart rather than to the stomach. In only 20 per cent. of 135 with these complaints were the stomach findings normal; in 33 per cent. there was hyperacidity, in 14 per cent. anacidity, and motor insufficiency in 18 per cent. In the majority of the men free from organic heart disease, the nervous excitement from the examination increased the pulse rate and also the blood pressure, while in those with fully compensated heart defects and in many with acute infectious disease of the heart, the pulse did not grow faster, and the blood pressure persisted normal or dropped below normal. The heart seems to have to work harder when the person reclines than when he stands. This is evidenced by the louder systolic murmur, the passage of the prediastolic murmur into the systolic, and the accentuation of the second sound of the pulmonary artery when a patient with mitral defect reclines. The accentuation of the second sound manifest in the reclining position may be one of the very earliest signs of true heart trouble. The percussion findings as to the proportions of the heart are often normal even with a valvular defect.

In consequence of the variability of the left nipple line, we must be extremely cautious in affirming an increase in the size of the heart. The distance between the left nipple and the median line ranged from 8 to 12 cm. in his cases. The distance from the left nipple to the tip of the apex may reach 3.5 cm. No parallelism between the size of the heart and these differences in the location of the left nipple could be detected as a rule. In the mild and beginning cases of mitral defect, the systolic murmur is heard exclusively over the pulmonary artery. A loud systolic murmur keeping strictly to the pulmonary artery is of accidental origin, and may be encountered with tachycardia. With tachycardia, the first sound a sharp clapping, the blood pressure is abnormally high. When the first sound is the normal tone, the blood pressure is normal in the majority of cases; with embryocardia, it is below normal. A brief systolic murmur is often noted with tachycardia. The systolic murmur of organic origin keeps much fainter, and it may disappear altogether in the reclining position. With palpitation of the heart, a murmur is sometimes heard at the apex for which a reflux jet of blood from the ventricle into the auricle may be responsible. The question as to the reserve energy of the well hypertrophied heart and the power of adaptation to increased demands, is still open to discussion. According to his personal observation, the heart even with a well compensated defect responds differently to excitation (pulse rate, blood pressure), from the sound heart. If we consider the accentuation of the second pulmonary sound with overburdening of the heart (the *Belastungsprobe* of the Germans), an index of its functional capacity, then we must arrive at the conclusion that the reserve force of the heart, even with perfect compensation, is limited and small. Accepting the above, it follows as a matter of course that men with even slight heart defects cannot be utilized for military service.

Hospitalstidende, Copenhagen

August 29, LX, No. 35, pp. 837-860

116 *Joint Lesions with Syringomyelia. V. Askgaard.—p. 837.
117 Synovial Cyst—Arthroma—in a Muscle. A. Sennels.—p. 846.

116. **Joint Lesions with Syringomyelia.**—Askgaard remarks that joint lesions are the rule in about 25 per cent. of all cases of syringomyelia, and describes with illustrations an exceptionally severe case in a man of 39. The wrists and hands were the seat of the destructive and deforming process but, as usual, there was little tendency to ankylosis. As spontaneous remissions sometimes occur, treatment should be conservative unless the disturbances demand resection. When this is the case, as recurrence is liable, amputation is better than resection. Ample facilities for drainage should be provided, but even large accumulations are sometimes spontaneously absorbed. This occurred in one hand in the case reported, and the other is being treated conservatively. The wrist is worn in a sling. The fingers can still be used actively but those on the other hand were left contracted. Amputation has been considered, but the fear of recurrence in the stump weighs down the scale against it.